CB&I Federal Services

(Printed Name)
Surveyor: Patricia Lozano

(Signature)
Surveyor: Patricia Lozano Date: 7/7/14

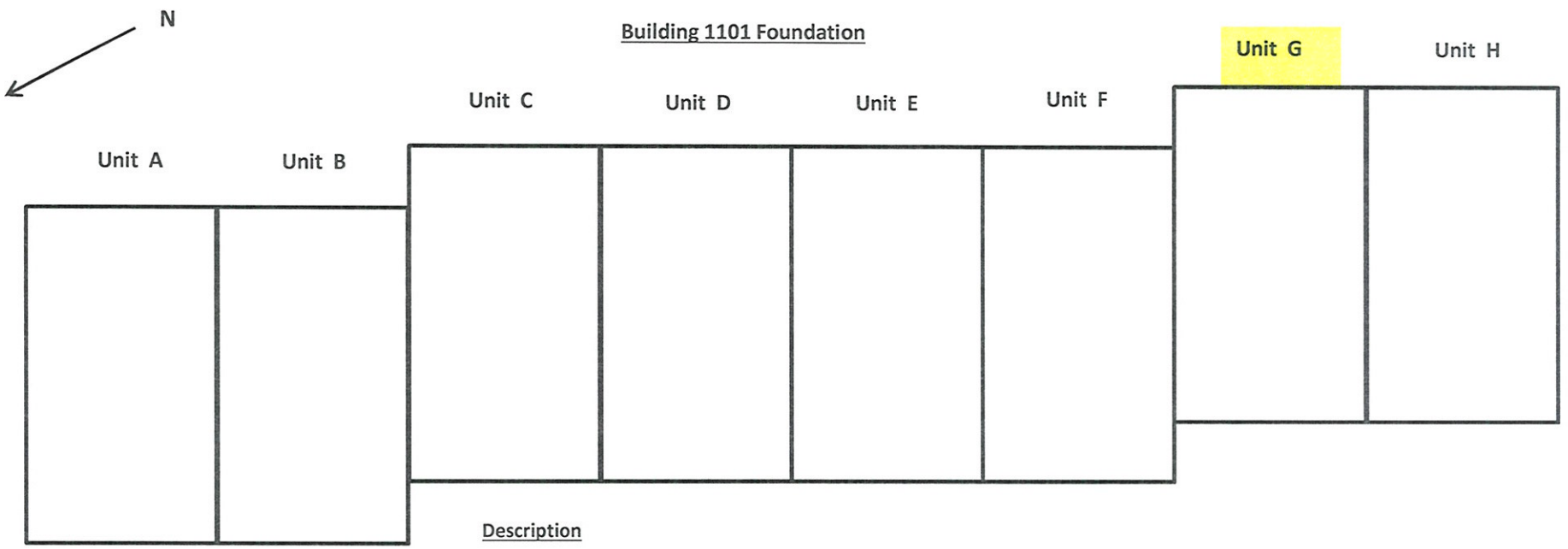
Survey Number: TIRS- 05192014 BGC JSS 071

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					9	602	<MDA	207					Follow up on Grid #30
62					6	615	<MDA	218					Follow up on Grid #31
63					5	577	<MDA	185					Follow up on Grid #32
64					9	596	<MDA	202					Follow up on Grid #43
65					8	595	<MDA	201					Follow up on Grid #48
66					12	610	13	214					Follow up on Grid #49
67					11	588	<MDA	194					Follow up on Grid #56
68					9	630	<MDA	232					Follow up on Grid #11
69					21	680	24	276					Follow up on Grid #14
70					7	652	<MDA	251					Follow up on Grid #15
71					9	617	<MDA	220					Follow up on Grid #24

(Printed Name) Surveyor: Patricia Lozano

(Signature) Surveyor: [signature] Date: 7/7/14

Survey Number: TIRS- 05192014 BGC JSS 071



Description

Total 59 of one square meter grids were established within Unit G. 100% scan survey on all accessible surface performed. A static count performed and a smear obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/20/2014
9:03:33 AM

Header 1: Treasure Island
Header 2: 3030 S/N 265374
Header 3: alpha bkgd:0 0.2
Header 4: beta bkgd: 32.6
Header 5: Bldg 1101 G BGC
Header 6: RCT:P Lozano

Calibration Due Date: 5/1/2015

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/20/2014	7:39:17	0	33		1 S	
2	5/20/2014	7:41:02	0	28		1 S	
3	5/20/2014	7:42:18	0	25		1 S	
4	5/20/2014	7:43:45	0	29		1 S	
5	5/20/2014	7:45:05	0	26		1 S	
6	5/20/2014	7:46:20	0	40		1 S	
7	5/20/2014	7:48:00	0	24		1 S	
8	5/20/2014	7:49:15	0	34		1 S	
9	5/20/2014	7:50:43	0	27		1 S	
10	5/20/2014	7:52:34	0	34		1 S	
11	5/20/2014	7:54:03	2	40		1 S	
12	5/20/2014	7:55:44	0	23		1 S	
13	5/20/2014	7:57:13	0	24		1 S	
14	5/20/2014	7:58:26	0	34		1 S	
15	5/20/2014	7:59:39	0	17		1 S	
16	5/20/2014	8:02:16	0	40		1 S	
17	5/20/2014	8:03:29	0	27		1 S	
18	5/20/2014	8:04:58	0	43		1 S	
19	5/20/2014	8:06:10	0	23		1 S	
20	5/20/2014	8:07:23	0	17		1 S	

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21	5/20/2014	8:09:15	0	38	1 S
22	5/20/2014	8:10:39	0	30	1 S
23	5/20/2014	8:12:02	0	34	1 S
24	5/20/2014	8:13:22	1	35	1 S
25	5/20/2014	8:14:37	1	24	1 S
26	5/20/2014	8:15:51	0	30	1 S
27	5/20/2014	8:17:06	0	32	1 S
28	5/20/2014	8:18:18	0	30	1 S
29	5/20/2014	8:19:30	0	29	1 S
30	5/20/2014	8:20:46	0	31	1 S
31	5/20/2014	8:22:06	0	29	1 S
32	5/20/2014	8:23:37	0	25	1 S
33	5/20/2014	8:24:50	0	33	1 S
34	5/20/2014	8:26:08	1	29	1 S
35	5/20/2014	8:27:23	0	25	1 S
36	5/20/2014	8:29:20	0	33	1 S
37	5/20/2014	8:30:38	0	26	1 S
38	5/20/2014	8:31:53	0	23	1 S
39	5/20/2014	8:33:16	0	17	1 S
40	5/20/2014	8:34:47	0	27	1 S
41	5/20/2014	8:36:00	0	37	1 S
42	5/20/2014	8:37:38	0	25	1 S
43	5/20/2014	8:38:51	0	26	1 S
44	5/20/2014	8:40:34	0	29	1 S
45	5/20/2014	8:41:47	0	32	1 S
46	5/20/2014	8:42:58	0	27	1 S
47	5/20/2014	8:44:14	0	28	1 S
48	5/20/2014	8:46:00	0	17	1 S
49	5/20/2014	8:47:15	0	25	1 S
50	5/20/2014	8:48:32	0	27	1 S
51	5/20/2014	8:49:57	0	35	1 S
52	5/20/2014	8:52:33	1	38	1 S
53	5/20/2014	8:53:44	1	35	1 S
54	5/20/2014	8:54:56	0	26	1 S
55	5/20/2014	8:56:08	0	38	1 S
56	5/20/2014	8:57:21	0	51	1 S
57	5/20/2014	8:58:47	0	30	1 S
58	5/20/2014	8:59:59	0	23	1 S
59	5/20/2014	9:02:03	0	32	1 S

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Date: 7/7/14
Survey Number: TIRS- 05192014 BGC JSS 071

Header 1:	Treasure Island	
Header 2:	2360 S/N	275713
Header 3:	Alpha BKGD	2
Header 4:	Beta BKGD.	360.9
Header 5:	1101 G Concrete	
Header 6:	RCT: P.Lozano	

S=Scaler, R=Ratemeter

Sample #	Date	Time		Alpha	Beta	S/R	Count Time	Location	
	5/19/2014	12:28:00	PM	1	456	S		1	BKGD
1	5/19/2014	12:29:58	PM	6	535	S		1	
2	5/19/2014	12:33:10	PM	2	571	S		1	
3	5/19/2014	12:34:38	PM	1	514	S		1	
4	5/19/2014	12:36:21	PM	6	564	S		1	
5	5/19/2014	12:37:47	PM	6	525	S		1	
6	5/19/2014	12:39:12	PM	6	549	S		1	
7	5/19/2014	12:40:37	PM	5	521	S		1	
8	5/19/2014	12:42:13	PM	1	544	S		1	
9	5/19/2014	12:44:20	PM	7	537	S		1	
10	5/19/2014	12:45:48	PM	4	558	S		1	
11	5/19/2014	12:47:21	PM	3	583	S		1	
12	5/19/2014	12:49:03	PM	3	506	S		1	
13	5/19/2014	12:50:39	PM	1	515	S		1	
14	5/19/2014	12:52:18	PM	8	563	S		1	
15	5/19/2014	12:54:49	PM	5	582	S		1	
16	5/19/2014	12:56:32	PM	4	526	S		1	
17	5/19/2014	12:58:01	PM	8	525	S		1	
18	5/19/2014	12:59:26	PM	7	530	S		1	
19	5/19/2014	1:01:01	PM	7	542	S		1	
20	5/19/2014	1:03:01	PM	4	533	S		1	
21	5/19/2014	1:04:30	PM	1	526	S		1	
22	5/19/2014	1:06:03	PM	6	560	S		1	
23	5/19/2014	1:07:40	PM	5	558	S		1	
24	5/19/2014	1:09:10	PM	7	587	S		1	
25	5/19/2014	1:10:37	PM	2	531	S		1	
26	5/19/2014	1:12:04	PM	8	522	S		1	

(Printed Name)
Surveyor: Patricia Lozano
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Surveyor: Patricia Lozano Date: 7/7/14

Survey Number: TIRS- 05192014 BGC JSS 071

27	5/19/2014	1:13:42 PM	5	552	S	1
28	5/19/2014	1:15:08 PM	5	529	S	1
29	5/19/2014	1:16:34 PM	3	565	S	1
30	5/19/2014	1:18:24 PM	1	585	S	1
31	5/19/2014	1:20:02 PM	5	601	S	1
32	5/19/2014	1:21:31 PM	4	585	S	1
33	5/19/2014	1:23:01 PM	4	543	S	1
34	5/19/2014	1:24:33 PM	4	559	S	1
35	5/19/2014	1:26:02 PM	6	535	S	1
36	5/19/2014	1:27:28 PM	4	544	S	1
37	5/19/2014	1:29:01 PM	2	558	S	1
38	5/19/2014	1:30:38 PM	3	492	S	1
39	5/19/2014	1:33:29 PM	3	558	S	1
40	5/19/2014	1:34:51 PM	1	496	S	1
41	5/19/2014	1:36:24 PM	10	561	S	1
42	5/19/2014	1:37:58 PM	3	537	S	1
43	5/19/2014	1:39:19 PM	6	573	S	1
44	5/19/2014	1:40:44 PM	1	512	S	1
45	5/19/2014	1:42:18 PM	6	529	S	1
46	5/19/2014	1:45:50 PM	3	551	S	1
47	5/19/2014	1:47:34 PM	5	506	S	1
48	5/19/2014	1:49:03 PM	4	562	S	1
49	5/19/2014	1:50:26 PM	5	562	S	1
50	5/19/2014	1:51:52 PM	8	552	S	1
51	5/19/2014	1:53:31 PM	4	1151	S	1
52	5/19/2014	1:55:06 PM	5	544	S	1
53	5/19/2014	1:57:05 PM	2	555	S	1
54	5/19/2014	1:58:35 PM	5	547	S	1
55	5/19/2014	2:00:12 PM	3	577	S	1
56	5/19/2014	2:02:07 PM	4	600	S	1
57	5/19/2014	2:04:10 PM	5	523	S	1
58	5/19/2014	2:05:37 PM	6	527	S	1
59	5/19/2014	2:07:20 PM	3	542	S	1
60	5/19/2014	2:08:58 PM	2	589	S	1
61	5/27/2014	12:47 PM	9	602	S	1
62	5/27/2014	12:49 PM	6	615	S	1
63	5/27/2014	12:50 PM	5	577	S	1
64	5/27/2014	12:52 PM	9	596	S	1
65	5/27/2014	12:54 PM	8	595	S	1
66	5/27/2014	12:56 PM	12	610	S	1
67	5/27/2014	12:58 PM	11	588	S	1
68	5/27/2014	1:04 PM	9	630	S	1
69	5/27/2014	1:06 PM	21	680	S	1
70	5/27/2014	1:08 PM	7	652	S	1
71	5/27/2014	1:09 PM	9	617	S	1

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Patricia Lozano Date: 7/7/14
Survey Number: TIRS- 05192014 BGC JSS 071

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 06122014 BGC JSS 140

Survey Description: Gamma walkover survey performed at Bigelow Court Building 1101 G underside of concrete foundation. Survey was performed using a Ludlum 2221/44-20 at a rate not to exceed 0.5 meter per second with the detector height of 4 inches from surface of concrete and observing both audio and visual meter response. The purpose of this survey is to determine the presence of items or point sources underside of concrete foundation. No indication of items or point sources were identified. Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 6/12/2014 **Time:** 0820 **End Date:** 6/12/2014 **Time:** 0910

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 06/12/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross		30 cm Gross	
Bldg 1101-G														Scan Range:13,654 - 22,566 cpm

Approved By: Takeshi Ibuki *Print Name* [signature] *Signature* RE *Title* 7/7/2014 *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05192014 BGC JSS 069

Survey Description: Bigelow Court- Building 1101 Unit H - Total surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit H. A one square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the highest scan location or the center of the grids. Elevated static counts above MDA (less than Release Limit) were identified. Additional follow up statics were performed. Concrete samples will be obtained for further analysis.

RWP: 2013 BGC JS 01 1

Start Date: 5/19/2014 **Time:** 1215 **End Date:** 5/27/2014 **Time:** 1355

(Printed Name) **Surveyor:** Kenneth Enabenter

(Signature) **Surveyor:** Kenneth Enabenter Date: 6/3/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.2%	33.3%
Serial #:	265988	Bkgd (lab) CPM:	0.2	31.8
Probe / #:		MDA (dpm/100cm²):	16	88
Cal. Due:	7/16/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	20.6%	31.9%
Serial #:	184934	Bkgd (lab) CPM:	1.6	276.0
Probe / #:	PR090881	MDA (dpm/100cm²):	7	43
Cal. Due:	6/24/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	2	259
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1 α cpm/100 cm2	Removable Contamination #1 β/γ cpm/100 cm2	Removable Contamination #1 α dpm/100 cm2	Removable Contamination #1 β/γ dpm/100 cm2	Total Contamination #2 α cpm/probe area	Total Contamination #2 β/γ cpm/probe area	Total Contamination #2 α dpm/100cm2	Total Contamination #2 β/γ dpm/100cm2	Gamma #3 Gross cpm	Gamma #3 < or ≥ IL	Exposure Rate #4 µR/hr Contact Gross	Exposure Rate #4 µR/hr 30 cm Gross	Comments
1	0	23	<MDA	<MDA	3	382	<MDA	57					Grid 1
2	0	21	<MDA	<MDA	5	389	<MDA	61					Grid 2
3	1	40	<MDA	<MDA	3	399	<MDA	66					Grid 3
4	0	32	<MDA	<MDA	7	390	<MDA	61					Grid 4
5	0	46	<MDA	<MDA	4	393	<MDA	63					Grid 5
6	2	43	<MDA	<MDA	9	405	<MDA	69					Grid 6
7	0	40	<MDA	<MDA	9	426	<MDA	81					Grid 7
8	0	30	<MDA	<MDA	6	385	<MDA	59					Grid 8
9	0	22	<MDA	<MDA	6	405	<MDA	69					Grid 9
10	1	38	<MDA	<MDA	1	384	<MDA	58					Grid 10
11	1	24	<MDA	<MDA	5	379	<MDA	55					Grid 11
12	0	38	<MDA	<MDA	3	394	<MDA	63					Grid 12
13	0	31	<MDA	<MDA	6	413	<MDA	74					Grid 13
14	1	36	<MDA	<MDA	12	404	9	69					Grid 14
15	0	38	<MDA	<MDA	8	410	<MDA	72					Grid 15
16	0	31	<MDA	<MDA	5	422	<MDA	78					Grid 16
17	0	33	<MDA	<MDA	5	381	<MDA	56					Grid 17
18	0	33	<MDA	<MDA	5	421	<MDA	78					Grid 18
19	1	51	<MDA	<MDA	4	383	<MDA	57					Grid 19
20	0	40	<MDA	<MDA	5	419	<MDA	77					Grid 20

Approved By: Takeshi Ibuki (*Print Name*) (*Signature*) RE (*Title*) 6/3/2014 (*Date*)

(Printed Name)
Surveyor: Kenneth Enabenter

(Signature)
Surveyor: [signature] Date: 4/3/2014

Survey Number: TIRS- 05192014 BGC JSS 069

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	1	35	<MDA	<MDA	9	426	<MDA	81					Grid 21
22	0	32	<MDA	<MDA	4	421	<MDA	78					Grid 22
23	0	31	<MDA	<MDA	4	402	<MDA	68					Grid 23
24	0	37	<MDA	<MDA	9	397	<MDA	65					Grid 24
25	0	29	<MDA	<MDA	5	414	<MDA	74					Grid 25
26	2	33	<MDA	<MDA	6	407	<MDA	70					Grid 26
27	0	45	<MDA	<MDA	4	405	<MDA	69					Grid 27
28	1	36	<MDA	<MDA	5	432	<MDA	84					Grid 28
29	1	25	<MDA	<MDA	4	381	<MDA	56					Grid 29
30	0	29	<MDA	<MDA	5	409	<MDA	71					Grid 30
31	0	29	<MDA	<MDA	9	442	<MDA	89					Grid 31
32	0	40	<MDA	<MDA	7	387	<MDA	60					Grid 32
33	0	25	<MDA	<MDA	2	411	<MDA	72					Grid 33
34	0	37	<MDA	<MDA	9	441	<MDA	89					Grid 34
35	1	31	<MDA	<MDA	4	420	<MDA	77					Grid 35
36	0	27	<MDA	<MDA	8	436	<MDA	86					Grid 36
37	0	38	<MDA	<MDA	7	405	<MDA	69					Grid 37
38	0	35	<MDA	<MDA	4	410	<MDA	72					Grid 38
39	0	27	<MDA	<MDA	2	383	<MDA	57					Grid 39
40	1	31	<MDA	<MDA	7	375	<MDA	53					Grid 40
41	1	29	<MDA	<MDA	3	392	<MDA	62					Grid 41
42	0	37	<MDA	<MDA	4	416	<MDA	75					Grid 42
43	0	41	<MDA	<MDA	2	387	<MDA	60					Grid 43
44	0	40	<MDA	<MDA	9	417	<MDA	76					Grid 44
45	0	32	<MDA	<MDA	3	389	<MDA	61					Grid 45
46	0	40	<MDA	<MDA	5	391	<MDA	62					Grid 46
47	0	31	<MDA	<MDA	8	411	<MDA	72					Grid 47
48	0	42	<MDA	<MDA	1	421	<MDA	78					Grid 48
49	0	25	<MDA	<MDA	6	412	<MDA	73					Grid 49
50	0	35	<MDA	<MDA	3	414	<MDA	74					Grid 50
51	0	35	<MDA	<MDA	10	441	<MDA	89					Grid 51
52	0	43	<MDA	<MDA	6	396	<MDA	64					Grid 52
53	0	38	<MDA	<MDA	8	431	<MDA	83					Grid 53
54	0	33	<MDA	<MDA	6	449	<MDA	93					Grid 54
55	0	31	<MDA	<MDA	6	427	<MDA	81					Grid 55
56	0	30	<MDA	<MDA	5	406	<MDA	70					Grid 56
57	0	29	<MDA	<MDA	10	441	<MDA	89					Grid 57
58	0	36	<MDA	<MDA	3	419	<MDA	77					Grid 58
59	0	33	<MDA	<MDA	6	433	<MDA	84					Grid 59
60					7	420	<MDA	77					Follow Up Static for Grid #14

(Printed Name)
Surveyor: Kenneth Enabenter

(Signature)
Surveyor: [signature]

Date: 6/3/2014

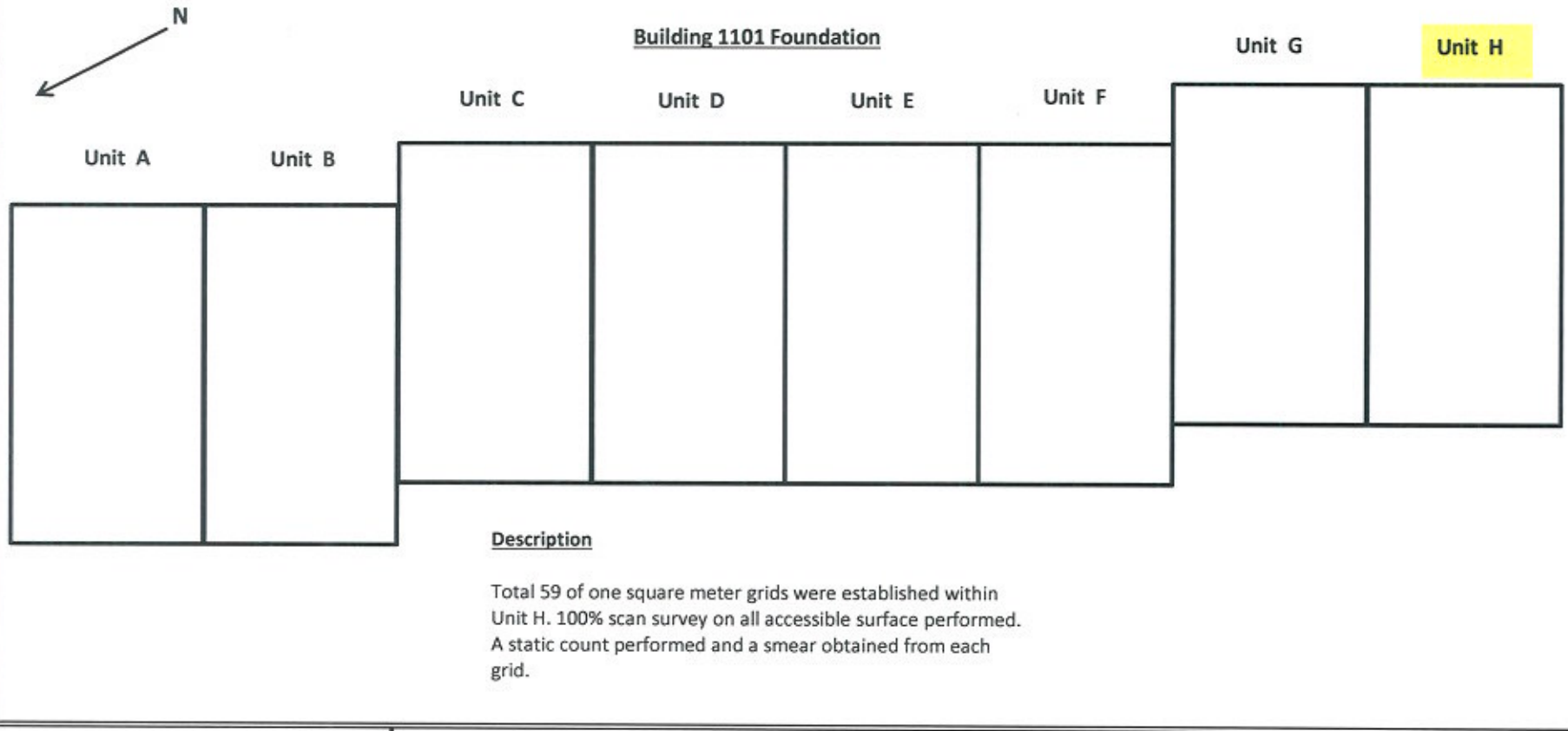
Survey Number: TIRS- 05192014 BGC JSS 069

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					4	437	<MDA	86					Follow Up Static for Grid #51
62					6	415	<MDA	75					Follow Up Static for Grid #57
63					9	451	<MDA	94					Follow Up Static for Grid #6
64					6	479	<MDA	109					Follow Up Static for Grid #7
65					5	511	<MDA	126					Follow Up Static for Grid #28
66					9	465	<MDA	101					Follow Up Static for Grid #31
67					9	453	<MDA	95					Follow Up Static for Grid #34
68					10	508	<MDA	125					Follow Up Static for Grid #36
69					14	468	10	103					Follow Up Static for Grid #53
70					3	467	<MDA	103					Follow Up Static for Grid #54
71					7	481	<MDA	110					Follow Up Static for Grid #59

(Printed Name) **Surveyor:** Kenneth Enabenter

(Signature) **Surveyor:** Date: 6/3/2014

Survey Number: TIRS- 05192014 BGC JSS 069



Description

Total 59 of one square meter grids were established within Unit H. 100% scan survey on all accessible surface performed. A static count performed and a smear obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/20/2014
12:57:36 PM

Header 1: Treasure Island
Header 2: 3030 S/N 265988
Header 3: alpha bkgd:0.2
Header 4: Beta bkgd:31.8
Header 5: BGC 1101-H
Header 6: RCT K Enabenter

Calibration Due Date: 7/16/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/20/2014	11:07:23	0	23	1	S	
2	5/20/2014	11:08:36	0	21	1	S	
3	5/20/2014	11:10:20	1	40	1	S	
4	5/20/2014	11:11:34	0	32	1	S	
5	5/20/2014	11:12:47	0	46	1	S	
6	5/20/2014	11:13:57	2	43	1	S	
7	5/20/2014	11:15:07	0	40	1	S	
8	5/20/2014	11:16:20	0	30	1	S	
9	5/20/2014	11:17:32	0	22	1	S	
10	5/20/2014	11:18:41	1	38	1	S	
11	5/20/2014	11:19:59	1	24	1	S	
12	5/20/2014	11:21:32	0	38	1	S	
13	5/20/2014	11:22:44	0	31	1	S	
14	5/20/2014	11:23:54	1	36	1	S	
15	5/20/2014	11:25:03	0	38	1	S	
16	5/20/2014	11:26:15	0	31	1	S	
17	5/20/2014	11:27:27	0	33	1	S	
18	5/20/2014	11:28:35	0	33	1	S	
19	5/20/2014	11:29:46	1	51	1	S	
20	5/20/2014	11:30:59	0	40	1	S	
21	5/20/2014	12:07:04	1	35	1	S	
22	5/20/2014	12:08:49	0	32	1	S	
23	5/20/2014	12:10:15	0	31	1	S	
24	5/20/2014	12:11:31	0	37	1	S	
25	5/20/2014	12:12:49	0	29	1	S	
26	5/20/2014	12:14:10	2	33	1	S	
27	5/20/2014	12:15:22	0	45	1	S	
28	5/20/2014	12:16:43	1	36	1	S	

(Printed Name)
Surveyor: Kenneth Enabenter
(Signature)
Surveyor: Date: 6/3/2014
Survey Number: TIRS- 05192014 BGC JSS 069

29	5/20/2014	12:18:01	1	25	1	S
30	5/20/2014	12:19:17	0	29	1	S
31	5/20/2014	12:20:31	0	29	1	S
32	5/20/2014	12:21:47	0	40	1	S
33	5/20/2014	12:23:01	0	25	1	S
34	5/20/2014	12:24:12	0	37	1	S
35	5/20/2014	12:25:37	1	31	1	S
36	5/20/2014	12:26:46	0	27	1	S
37	5/20/2014	12:27:55	0	38	1	S
38	5/20/2014	12:29:13	0	35	1	S
39	5/20/2014	12:30:23	0	27	1	S
40	5/20/2014	12:31:40	1	31	1	S
41	5/20/2014	12:33:05	1	29	1	S
42	5/20/2014	12:34:25	0	37	1	S
43	5/20/2014	12:35:34	0	41	1	S
44	5/20/2014	12:36:46	0	40	1	S
45	5/20/2014	12:38:00	0	32	1	S
46	5/20/2014	12:39:24	0	40	1	S
47	5/20/2014	12:40:38	0	31	1	S
48	5/20/2014	12:41:48	0	42	1	S
49	5/20/2014	12:42:57	0	25	1	S
50	5/20/2014	12:44:08	0	35	1	S
51	5/20/2014	12:45:29	0	35	1	S
52	5/20/2014	12:46:38	0	43	1	S
53	5/20/2014	12:47:48	0	38	1	S
54	5/20/2014	12:49:00	0	33	1	S
55	5/20/2014	12:50:12	0	31	1	S
56	5/20/2014	12:51:20	0	30	1	S
57	5/20/2014	12:52:29	0	29	1	S
58	5/20/2014	12:53:38	0	36	1	S
59	5/20/2014	12:54:48	0	33	1	S

(Printed Name)
Surveyor: Kenneth Enabenter
(Signature)
Surveyor: Date: 6/3/2014
Survey Number: TIRS- 05192014 BGC JSS 069

Header 1: Treasure Island
Header 2: 2360 S/N 184934
Header 3: Alpha BKGD: 1.9
Header 4: Beta BKGD:255.1
Header 5: Bldg 1101 H
Header 6: RCT:K.Enabenter

S=Scaler, R=Ratemeter

Sample #	Date	Time		Alpha	Beta	S/R	Count Time	Location
	5/19/2014	8:18	AM	2	259	S	BKGD	
1	5/20/2014	8:25	AM	3	382	S		
2	5/20/2014	8:27	AM	5	389	S		
3	5/20/2014	8:28	AM	3	399	S		
4	5/20/2014	8:30	AM	7	390	S		
5	5/20/2014	8:32	AM	4	393	S		
6	5/20/2014	8:33	AM	9	405	S		
7	5/20/2014	8:35	AM	9	426	S		
8	5/20/2014	8:37	AM	6	385	S		
9	5/20/2014	8:38	AM	6	405	S		
10	5/20/2014	8:40	AM	1	384	S		
11	5/20/2014	8:42	AM	5	379	S		
12	5/20/2014	8:44	AM	3	394	S		
13	5/20/2014	8:46	AM	6	413	S		
14	5/20/2014	8:47	AM	12	404	S		
15	5/20/2014	8:51	AM	8	410	S		
16	5/20/2014	8:52	AM	5	422	S		
17	5/20/2014	8:54	AM	5	381	S		
18	5/20/2014	8:56	AM	5	421	S		
19	5/20/2014	8:57	AM	4	383	S		
20	5/20/2014	8:59	AM	5	419	S		
21	5/20/2014	9:00	AM	9	426	S		
22	5/20/2014	9:02	AM	4	421	S		
23	5/20/2014	9:03	AM	4	402	S		
24	5/20/2014	9:05	AM	9	397	S		
25	5/20/2014	9:06	AM	5	414	S		
26	5/20/2014	9:08	AM	6	407	S		
27	5/20/2014	9:10	AM	4	405	S		
28	5/20/2014	9:12	AM	5	432	S		
29	5/20/2014	9:13	AM	4	381	S		
30	5/20/2014	9:15	AM	5	409	S		
31	5/20/2014	9:17	AM	9	442	S		
32	5/20/2014	9:18	AM	7	387	S		

(Printed Name)
Surveyor: Kenneth Enabenter
(Signature)
Surveyor:  Date: 6/3/2014
Survey Number: TIRS- 05192014 BGC JSS 069

33	5/20/2014 9:20 AM	2	411 S	
34	5/20/2014 9:21 AM	9	441 S	
35	5/20/2014 9:23 AM	4	420 S	
36	5/20/2014 9:25 AM	8	436 S	
37	5/20/2014 9:27 AM	7	405 S	
38	5/20/2014 9:28 AM	4	410 S	
39	5/20/2014 9:30 AM	2	383 S	
40	5/20/2014 9:32 AM	7	375 S	
41	5/20/2014 9:33 AM	3	392 S	
42	5/20/2014 9:35 AM	4	416 S	
43	5/20/2014 9:41 AM	2	387 S	
44	5/20/2014 9:43 AM	9	417 S	
45	5/20/2014 9:44 AM	3	389 S	
46	5/20/2014 9:46 AM	5	391 S	
47	5/20/2014 9:48 AM	8	411 S	
48	5/20/2014 9:49 AM	1	421 S	
49	5/20/2014 9:51 AM	6	412 S	
50	5/20/2014 9:52 AM	3	414 S	
51	5/20/2014 9:54 AM	10	441 S	
52	5/20/2014 9:56 AM	6	396 S	
53	5/20/2014 9:57 AM	8	431 S	
54	5/20/2014 9:59 AM	6	449 S	
55	5/20/2014 10:00 AM	6	427 S	
56	5/20/2014 10:02 AM	5	406 S	
57	5/20/2014 10:04 AM	10	441 S	
58	5/20/2014 10:06 AM	3	419 S	
59	5/20/2014 10:07 AM	6	433 S	
60	5/20/2014 10:10 AM	7	420 S	Follow Up Static for #14
61	5/20/2014 10:14 AM	4	437 S	Follow Up Static for #51
62	5/20/2014 10:15 AM	6	415 S	Follow Up Static for #57
63	5/20/2014 10:17 AM	9	451 S	Follow Up Static for #6
64	5/27/2014 1:36:29 PM	6	479 S	Follow Up Static for #7
65	5/27/2014 1:38:49 PM	5	511 S	Follow Up Static for #28
66	5/27/2014 1:40:46 PM	9	465 S	Follow Up Static for #31
67	5/27/2014 1:42:35 PM	9	453 S	Follow Up Static for #34
68	5/27/2014 1:45:04 PM	10	508 S	Follow Up Static for #36
69	5/27/2014 1:46:57 PM	14	468 S	Follow Up Static for #53
70	5/27/2014 1:48:43 PM	3	467 S	Follow Up Static for #54
71	5/27/2014 1:50:40 PM	7	481 S	Follow Up Static for #59

(Printed Name)
Surveyor: Kenneth Enabenter

(Signature)
Surveyor: Date: 6/3/2014

Survey Number: TIRS- 05192014 BGC JSS 069

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 06112014 BGC JSS 136

Survey Description: Gamma walkover survey performed at Bigelow Court Building 1101 H underside of concrete foundation. Survey was performed using a Ludlum 2221/44-20 at a rate not to exceed 0.5 meter per second with the detector height of 4 inches from surface of concrete and observing both audio and visual meter response. The purpose of this survey is to determine the presence of items or point sources underside of concrete foundation. No indication of items or point sources were identified. Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 6/11/2014 **Time:** 0910 **End Date:** 6/11/2014 **Time:** 1130

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 06/12/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross		30 cm Gross	
Bldg 1101-H														Scan Range: 13,654 - 23,101 cpm

Approved By: Takeshi Ibuki [signature] RE 7/7/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05202014 BGC JSS 083

Survey Description:

Surface contamination survey performed on 100% of all accessible areas of the concrete patios and sheds surrounding Building 1101. A one square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the center of every grid.

Elevated alpha and beta counts above MDA (less than Release Limits) were identified.

29 follow-up statics were performed after being selected by RCS John Massey following a review of the initial data.

RWP: 2014 BGC JS 01 1

Start Date: 5/20/2014 **Time:** 0730 **End Date:** 5/30/2014 **Time:** 1500

(Printed Name) **Surveyor:** Robert Minard

(Signature) **Surveyor:** Date: 6/6/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.4%	32.8%
Serial #:	265374	Bkgd (lab) CPM:	0.2	32.6
Probe / #:		MDA (dpm/100cm²):	16	90
Cal. Due:	5/1/2015	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	14.1%	19.1%
Serial #:	275724	Bkgd (lab) CPM:	1.9	424.4
Probe / #:	068422	MDA (dpm/100cm²):	11	89
Cal. Due:	10/29/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	6	571
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
1	0	34	<MDA	<MDA	12	524	12	89					See Map
2	0	27	<MDA	<MDA	2	417	<MDA	<MDA					See Map
3	0	37	<MDA	<MDA	12	522	12	<MDA					See Map
4	0	26	<MDA	<MDA	13	626	13	181					See Map
5	0	28	<MDA	<MDA	8	643	<MDA	196					See Map
6	0	38	<MDA	<MDA	8	614	<MDA	170					See Map
7	0	36	<MDA	<MDA	12	660	12	211					See Map
8	0	38	<MDA	<MDA	6	627	<MDA	182					See Map
9	0	27	<MDA	<MDA	4	489	<MDA	<MDA					See Map
10	0	29	<MDA	<MDA	8	457	<MDA	<MDA					See Map
11	0	23	<MDA	<MDA	7	457	<MDA	<MDA					See Map
12	0	36	<MDA	<MDA	11	670	<MDA	220					See Map
13	0	29	<MDA	<MDA	12	621	12	176					See Map
14	0	40	<MDA	<MDA	12	556	12	118					See Map
15	0	35	<MDA	<MDA	13	569	13	130					See Map
16	0	30	<MDA	<MDA	10	635	<MDA	189					See Map
17	0	19	<MDA	<MDA	6	617	<MDA	173					See Map
18	0	39	<MDA	<MDA	5	613	<MDA	169					See Map
19	0	31	<MDA	<MDA	8	654	<MDA	206					See Map
20	0	32	<MDA	<MDA	12	627	12	182					See Map

Approved By: Takeshi Ibuki *Print Name* — *Signature* — RE *Title* — 6/6/2014 *Date*

(Printed Name)
Surveyor: Robert Minard
(Signature)
Surveyor: Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	36	<MDA	<MDA	10	522	<MDA	<MDA					See Map
22	0	33	<MDA	<MDA	8	582	<MDA	141					See Map
23	0	25	<MDA	<MDA	5	703	<MDA	250					See Map
24	1	39	<MDA	<MDA	14	649	15	201					See Map
25	1	23	<MDA	<MDA	6	577	<MDA	137					See Map
26	1	34	<MDA	<MDA	6	554	<MDA	116					See Map
27	0	34	<MDA	<MDA	9	550	<MDA	113					See Map
28	0	36	<MDA	<MDA	8	544	<MDA	107					See Map
29	1	27	<MDA	<MDA	7	536	<MDA	100					See Map
30	0	28	<MDA	<MDA	6	540	<MDA	104					See Map
31	0	27	<MDA	<MDA	12	535	12	99					See Map
32	0	28	<MDA	<MDA	13	592	13	150					See Map
33	0	36	<MDA	<MDA	9	519	<MDA	<MDA					See Map
34	0	36	<MDA	<MDA	12	601	12	158					See Map
35	0	29	<MDA	<MDA	9	657	<MDA	209					See Map
36	0	43	<MDA	<MDA	6	597	<MDA	155					See Map
37	0	33	<MDA	<MDA	8	550	<MDA	113					See Map
38	0	29	<MDA	<MDA	7	575	<MDA	135					See Map
39	1	36	<MDA	<MDA	5	573	<MDA	133					See Map
40	0	30	<MDA	<MDA	9	588	<MDA	147					See Map
41	1	29	<MDA	<MDA	6	568	<MDA	129					See Map
42	0	30	<MDA	<MDA	7	552	<MDA	114					See Map
43	0	32	<MDA	<MDA	7	577	<MDA	137					See Map
44	0	32	<MDA	<MDA	4	507	<MDA	<MDA					See Map
45	1	28	<MDA	<MDA	6	565	<MDA	126					See Map
46	0	23	<MDA	<MDA	2	543	<MDA	106					See Map
47	0	30	<MDA	<MDA	13	563	13	124					See Map
48	0	35	<MDA	<MDA	12	526	12	91					See Map
49	0	37	<MDA	<MDA	9	590	<MDA	148					See Map
50	0	25	<MDA	<MDA	5	560	<MDA	122					See Map
51	0	29	<MDA	<MDA	4	566	<MDA	127					See Map
52	1	32	<MDA	<MDA	5	575	<MDA	135					See Map
53	0	28	<MDA	<MDA	5	578	<MDA	138					See Map
54	0	24	<MDA	<MDA	12	559	12	121					See Map
55	0	25	<MDA	<MDA	8	600	<MDA	157					See Map
56	0	33	<MDA	<MDA	9	577	<MDA	137					See Map
57	0	25	<MDA	<MDA	10	533	<MDA	97					See Map
58	0	30	<MDA	<MDA	11	530	<MDA	95					See Map
59	0	35	<MDA	<MDA	15	548	16	111					See Map
60	0	22	<MDA	<MDA	10	498	<MDA	<MDA					See Map

CB&I Federal Services

(Printed Name)
Surveyor: Robert Minard
(Signature)
Surveyor:

Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61	0	42	<MDA	<MDA	6	511	<MDA	<MDA					See Map
62	0	34	<MDA	<MDA	9	524	<MDA	89					See Map
63	0	21	<MDA	<MDA	10	530	<MDA	95					See Map
64	0	28	<MDA	<MDA	9	511	<MDA	<MDA					See Map
65	0	29	<MDA	<MDA	13	517	13	<MDA					See Map
66	1	36	<MDA	<MDA	5	498	<MDA	<MDA					See Map
67	0	28	<MDA	<MDA	4	507	<MDA	<MDA					See Map
68	0	34	<MDA	<MDA	11	512	<MDA	<MDA					See Map
69	0	30	<MDA	<MDA	16	541	17	105					See Map
70	0	30	<MDA	<MDA	7	527	<MDA	92					See Map
71	0	25	<MDA	<MDA	19	558	21	120					See Map
72	1	28	<MDA	<MDA	7	567	<MDA	128					See Map
73	0	27	<MDA	<MDA	8	563	<MDA	124					See Map
74	0	38	<MDA	<MDA	12	551	12	113					See Map
75	0	39	<MDA	<MDA	9	573	<MDA	133					See Map
76	0	30	<MDA	<MDA	6	559	<MDA	121					See Map
77	0	27	<MDA	<MDA	4	547	<MDA	110					See Map
78	0	30	<MDA	<MDA	6	498	<MDA	<MDA					See Map
79	1	35	<MDA	<MDA	10	581	<MDA	140					See Map
80	0	27	<MDA	<MDA	7	542	<MDA	105					See Map
81	0	32	<MDA	<MDA	5	604	<MDA	161					See Map
82	1	21	<MDA	<MDA	6	601	<MDA	158					See Map
83	0	27	<MDA	<MDA	8	579	<MDA	139					See Map
84	0	30	<MDA	<MDA	9	592	<MDA	150					See Map
85	0	33	<MDA	<MDA	9	593	<MDA	151					See Map
86	0	38	<MDA	<MDA	11	595	<MDA	153					See Map
87	0	31	<MDA	<MDA	11	587	<MDA	146					See Map
88	0	32	<MDA	<MDA	6	585	<MDA	144					See Map
89	0	39	<MDA	<MDA	10	535	<MDA	99					See Map
90	0	26	<MDA	<MDA	10	562	<MDA	123					See Map
91	0	41	<MDA	<MDA	4	545	<MDA	108					See Map
92	1	26	<MDA	<MDA	9	560	<MDA	122					See Map
93	0	26	<MDA	<MDA	9	490	<MDA	<MDA					See Map
94	0	35	<MDA	<MDA	8	536	<MDA	100					See Map
95	0	28	<MDA	<MDA	10	506	<MDA	<MDA					See Map
96	0	28	<MDA	<MDA	9	539	<MDA	103					See Map
97	0	31	<MDA	<MDA	11	511	<MDA	<MDA					See Map
98	0	33	<MDA	<MDA	9	476	<MDA	<MDA					See Map
99	1	32	<MDA	<MDA	10	492	<MDA	<MDA					See Map
100	0	35	<MDA	<MDA	9	562	<MDA	123					See Map

(Printed Name)
Surveyor: Robert Minard
(Signature)
Surveyor: Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
101	0	16	<MDA	<MDA	15	505	16	<MDA					See Map
102	0	37	<MDA	<MDA	7	515	<MDA	<MDA					See Map
103	0	17	<MDA	<MDA	6	566	<MDA	127					See Map
104	0	31	<MDA	<MDA	10	536	<MDA	100					See Map
105	0	29	<MDA	<MDA	7	512	<MDA	<MDA					See Map
106	0	32	<MDA	<MDA	6	538	<MDA	102					See Map
107	0	33	<MDA	<MDA	7	541	<MDA	105					See Map
108	0	36	<MDA	<MDA	2	586	<MDA	145					See Map
109	0	16	<MDA	<MDA	5	534	<MDA	98					See Map
110	0	27	<MDA	<MDA	7	522	<MDA	<MDA					See Map
111	0	36	<MDA	<MDA	8	572	<MDA	132					See Map
112	0	24	<MDA	<MDA	9	593	<MDA	151					See Map
113	0	32	<MDA	<MDA	14	575	15	135					See Map
114	0	26	<MDA	<MDA	4	557	<MDA	119					See Map
115	0	46	<MDA	<MDA	6	550	<MDA	113					See Map
116	0	34	<MDA	<MDA	13	539	13	103					See Map
117	0	31	<MDA	<MDA	10	550	<MDA	113					See Map
118	0	25	<MDA	<MDA	3	606	<MDA	163					See Map
119	0	30	<MDA	<MDA	8	618	<MDA	174					See Map
120	0	31	<MDA	<MDA	10	604	<MDA	161					See Map
121	0	29	<MDA	<MDA	15	635	16	189					See Map
122	0	27	<MDA	<MDA	10	593	<MDA	151					See Map
123	0	29	<MDA	<MDA	10	579	<MDA	139					See Map
124	0	26	<MDA	<MDA	7	574	<MDA	134					See Map
125	0	29	<MDA	<MDA	16	541	17	105					See Map
126	1	33	<MDA	<MDA	8	600	<MDA	157					See Map
127	0	31	<MDA	<MDA	8	565	<MDA	126					See Map
128	0	33	<MDA	<MDA	5	538	<MDA	102					See Map
129	0	30	<MDA	<MDA	5	610	<MDA	166					See Map
130	0	30	<MDA	<MDA	11	617	<MDA	173					See Map
131	0	35	<MDA	<MDA	11	559	<MDA	121					See Map
132	0	43	<MDA	<MDA	10	520	<MDA	<MDA					See Map
133	0	29	<MDA	<MDA	9	559	<MDA	121					See Map
134	0	25	<MDA	<MDA	8	502	<MDA	<MDA					See Map
135	0	34	<MDA	<MDA	6	502	<MDA	<MDA					See Map
136	0	32	<MDA	<MDA	8	495	<MDA	<MDA					See Map
137	0	25	<MDA	<MDA	7	536	<MDA	100					See Map
138	0	27	<MDA	<MDA	4	495	<MDA	<MDA					See Map
139	0	33	<MDA	<MDA	11	517	<MDA	<MDA					See Map
140	0	26	<MDA	<MDA	5	534	<MDA	98					See Map

(Printed Name)
Surveyor: Robert Minard
(Signature)
Surveyor: Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
141	0	30	<MDA	<MDA	10	521	<MDA	<MDA					See Map
142	0	27	<MDA	<MDA	10	562	<MDA	123					See Map
143	0	32	<MDA	<MDA	10	552	<MDA	114					See Map
144	0	33	<MDA	<MDA	10	594	<MDA	152					See Map
145	1	26	<MDA	<MDA	5	587	<MDA	146					See Map
146	0	34	<MDA	<MDA	9	530	<MDA	95					See Map
147	0	40	<MDA	<MDA	14	541	15	105					See Map
148	0	22	<MDA	<MDA	5	567	<MDA	128					See Map
149	1	31	<MDA	<MDA	6	519	<MDA	<MDA					See Map
150	0	28	<MDA	<MDA	11	507	<MDA	<MDA					See Map
151	0	26	<MDA	<MDA	4	544	<MDA	107					See Map
152	0	40	<MDA	<MDA	7	526	<MDA	91					See Map
153	1	30	<MDA	<MDA	12	547	12	110					See Map
154	0	43	<MDA	<MDA	10	566	<MDA	127					See Map
155	0	20	<MDA	<MDA	10	547	<MDA	110					See Map
156	0	32	<MDA	<MDA	9	593	<MDA	151					See Map
157	1	25	<MDA	<MDA	6	534	<MDA	98					See Map
158	0	18	<MDA	<MDA	5	573	<MDA	133					See Map
159	0	32	<MDA	<MDA	4	518	<MDA	<MDA					See Map
160	0	25	<MDA	<MDA	5	536	<MDA	100					See Map
161	1	25	<MDA	<MDA	4	598	<MDA	156					See Map
162	0	35	<MDA	<MDA	6	564	<MDA	125					See Map
163	0	27	<MDA	<MDA	3	573	<MDA	133					See Map
164	0	36	<MDA	<MDA	6	546	<MDA	109					See Map
165	0	34	<MDA	<MDA	8	640	<MDA	193					See Map
166	0	23	<MDA	<MDA	9	544	<MDA	107					See Map
167	1	30	<MDA	<MDA	1	502	<MDA	<MDA					See Map
168	0	40	<MDA	<MDA	4	526	<MDA	91					See Map
169	1	22	<MDA	<MDA	1	482	<MDA	<MDA					See Map
170	0	45	<MDA	<MDA	3	456	<MDA	<MDA					See Map
171	0	30	<MDA	<MDA	3	458	<MDA	<MDA					See Map
172	0	34	<MDA	<MDA	4	495	<MDA	<MDA					See Map
173					9	522	<MDA	<MDA					Follow-up Grid 4 Unit G back patio
174					9	511	<MDA	<MDA					Follow-up Grid 5 Unit G back patio
175					7	509	<MDA	<MDA					Follow-up Grid 6 Unit G back patio
176					6	528	<MDA	93					Follow-up Grid 7 Unit G back patio
177					7	510	<MDA	<MDA					Follow-up Grid 8 Unit G back patio
178					6	503	<MDA	<MDA					Follow-up Grid 12 Unit G back patio
179					3	471	<MDA	<MDA					Follow-up Grid 13 Unit H back patio
180					6	465	<MDA	<MDA					Follow-up Grid 15 Unit H back patio

(Printed Name)
Surveyor: Robert Minard

(Signature)
Surveyor: ✓ Date: 6/6/2014

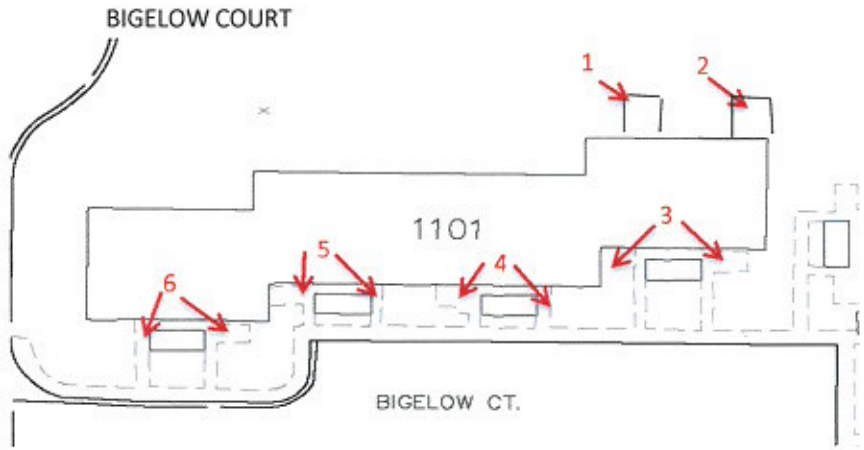
Survey Number: TIRS- 05202014 BGC JSS 083

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
181					9	504	<MDA	<MDA					Follow-up Grid 16 Unit H back patio
182					10	480	<MDA	<MDA					Follow-up Grid 17 Unit H back patio
183					6	479	<MDA	<MDA					Follow-up Grid 19 Unit H back patio
184					8	517	<MDA	<MDA					Follow-up Grid 20 Unit H back patio
185					6	522	<MDA	<MDA					Follow-up Grid 23 Unit H back patio
186					3	541	<MDA	105					Follow-up Grid 24 Unit H back patio
187					10	444	<MDA	<MDA					Follow-up Grid 32 Unit G and H front patio
188					13	470	13	<MDA					Follow-up Grid 34 Unit G and H front patio
189					13	508	13	<MDA					Follow-up Grid 35 Unit G and H front patio
190					10	481	<MDA	<MDA					Follow-up Grid 47 Unit G and H front patio
191					12	514	12	<MDA					Follow-up Grid 59 Unit G and H front patio
192					11	446	<MDA	<MDA					Follow-up Grid 65 Unit E and F front patio
193					14	418	15	<MDA					Follow-up Grid 69 Unit E and F front patio
194					10	454	<MDA	<MDA					Follow-up Grid 71 Unit E and F front patio
195					7	431	<MDA	<MDA					Follow-up Grid 101 Unit C and D front patio
196					11	466	<MDA	<MDA					Follow-up Grid 113 Unit C and D front patio
197					9	500	<MDA	<MDA					Follow-up Grid 119 Unit C and D front patio
198					11	477	<MDA	<MDA					Follow-up Grid 121 Unit C and D front patio
199					7	481	<MDA	<MDA					Follow-up Grid 125 Unit C and D front patio
200					5	460	<MDA	<MDA					Follow-up Grid 130 Unit C and D front patio
201					8	468	<MDA	<MDA					Follow-up Grid 147 Unit A and B front patio

(Printed Name) **Surveyor:** Robert Minard

(Signature) **Surveyor:** Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083



Location	Grid Number	Type
1	1 - 12	Unit G Patio and Steps
2	13 - 24	Unit H Patio and Steps
3	25 - 61	Unit G,H Steps,Shed,and Patios
4	62 - 98	Unit E,F Steps,Shed,and Patios
5	99 - 135	Unit C,D Steps,Shed,and Patios
6	136 - 172	Unit A,B Steps,Shed,and Patios

Map is for reference only identifying all concrete surveyed (sidewalks, patios, and steps around 1101.)

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

N

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/30/2014
3:06:12 PM

Header 1: Treasure Island
Header 2: 3030 S/N 265374
Header 3: alpha bkgd:0.2
Header 4: beta bkgd:32.6
Header 5: 1101 Patio
Header 6: RCT:R Minard

Calibration Due Date: 5/1/2015

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/30/2014	10:09:49	0	34	1.0	S	
2	5/30/2014	10:19:31	0	27	1.0	S	
3	5/30/2014	10:22:04	0	37	1.0	S	
4	5/30/2014	10:26:48	0	26	1.0	S	
5	5/30/2014	10:28:02	0	28	1.0	S	
6	5/30/2014	10:30:03	0	38	1.0	S	
7	5/30/2014	10:31:14	0	36	1.0	S	
8	5/30/2014	10:32:29	0	38	1.0	S	
9	5/30/2014	10:33:38	0	27	1.0	S	
10	5/30/2014	10:34:58	0	29	1.0	S	
11	5/30/2014	10:36:10	0	23	1.0	S	
12	5/30/2014	10:37:24	0	36	1.0	S	
13	5/30/2014	10:38:40	0	29	1.0	S	
14	5/30/2014	10:40:00	0	40	1.0	S	
15	5/30/2014	10:41:14	0	35	1.0	S	
16	5/30/2014	10:42:38	0	30	1.0	S	
17	5/30/2014	10:45:29	0	19	1.0	S	
18	5/30/2014	10:46:52	0	39	1.0	S	
19	5/30/2014	10:48:04	0	31	1.0	S	
20	5/30/2014	10:49:19	0	32	1.0	S	
21	5/30/2014	10:50:47	0	36	1.0	S	
22	5/30/2014	10:51:57	0	33	1.0	S	
23	5/30/2014	10:53:10	0	25	1.0	S	
24	5/30/2014	10:54:34	1	39	1.0	S	
25	5/30/2014	10:55:45	1	23	1.0	S	
26	5/30/2014	10:56:56	1	34	1.0	S	
27	5/30/2014	10:58:11	0	34	1.0	S	
28	5/30/2014	11:04:22	0	36	1.0	S	
29	5/30/2014	11:05:35	1	27	1.0	S	
30	5/30/2014	11:06:49	0	28	1.0	S	
31	5/30/2014	11:08:07	0	27	1.0	S	
32	5/30/2014	11:09:24	0	28	1.0	S	
33	5/30/2014	11:11:21	0	36	1.0	S	
34	5/30/2014	11:12:33	0	36	1.0	S	
35	5/30/2014	11:13:48	0	29	1.0	S	
36	5/30/2014	11:15:01	0	43	1.0	S	
37	5/30/2014	11:16:14	0	33	1.0	S	
38	5/30/2014	11:17:31	0	29	1.0	S	
39	5/30/2014	11:18:52	1	36	1.0	S	
40	5/30/2014	11:20:06	0	30	1.0	S	
41	5/30/2014	11:21:28	1	29	1.0	S	
42	5/30/2014	11:23:01	0	30	1.0	S	
43	5/30/2014	11:24:33	0	32	1.0	S	
44	5/30/2014	11:26:25	0	32	1.0	S	
45	5/30/2014	11:27:40	1	28	1.0	S	
46	5/30/2014	11:28:51	0	23	1.0	S	
47	5/30/2014	11:30:14	0	30	1.0	S	
48	5/30/2014	11:33:31	0	35	1.0	S	

(Printed Name)
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Survey Number: TIRS- 05202014 BGC JSS 083

49	5/30/2014	12:09:59	0	37	1.0	S
50	5/30/2014	12:12:00	0	25	1.0	S
51	5/30/2014	12:13:30	0	29	1.0	S
52	5/30/2014	12:15:02	1	32	1.0	S
53	5/30/2014	12:16:24	0	28	1.0	S
54	5/30/2014	12:17:44	0	24	1.0	S
55	5/30/2014	12:18:53	0	25	1.0	S
56	5/30/2014	12:20:06	0	33	1.0	S
57	5/30/2014	12:21:24	0	25	1.0	S
58	5/30/2014	12:22:47	0	30	1.0	S
59	5/30/2014	12:24:03	0	35	1.0	S
60	5/30/2014	12:25:14	0	22	1.0	S
61	5/30/2014	12:26:28	0	42	1.0	S
62	5/30/2014	12:27:36	0	34	1.0	S
63	5/30/2014	12:28:57	0	21	1.0	S
64	5/30/2014	12:30:06	0	28	1.0	S
65	5/30/2014	12:31:46	0	29	1.0	S
66	5/30/2014	12:33:00	1	36	1.0	S
67	5/30/2014	12:34:09	0	28	1.0	S
68	5/30/2014	12:35:23	0	34	1.0	S
69	5/30/2014	12:36:37	0	30	1.0	S
70	5/30/2014	12:37:46	0	30	1.0	S
71	5/30/2014	12:39:01	0	25	1.0	S
72	5/30/2014	12:40:17	1	28	1.0	S
73	5/30/2014	12:41:29	0	27	1.0	S
74	5/30/2014	12:42:46	0	38	1.0	S
75	5/30/2014	12:44:00	0	39	1.0	S
76	5/30/2014	12:45:08	0	30	1.0	S
77	5/30/2014	12:46:28	0	27	1.0	S
78	5/30/2014	12:47:55	0	30	1.0	S
79	5/30/2014	12:49:05	1	35	1.0	S
80	5/30/2014	12:50:15	0	27	1.0	S
81	5/30/2014	12:51:52	0	32	1.0	S
82	5/30/2014	12:53:06	1	21	1.0	S
83	5/30/2014	12:54:19	0	27	1.0	S
84	5/30/2014	12:55:30	0	30	1.0	S
85	5/30/2014	12:56:43	0	33	1.0	S
86	5/30/2014	12:57:54	0	38	1.0	S
87	5/30/2014	12:59:02	0	31	1.0	S
88	5/30/2014	13:00:14	0	32	1.0	S
89	5/30/2014	13:01:24	0	39	1.0	S
90	5/30/2014	13:02:31	0	26	1.0	S
91	5/30/2014	13:03:47	0	41	1.0	S
92	5/30/2014	13:04:56	1	26	1.0	S
93	5/30/2014	13:06:15	0	26	1.0	S
94	5/30/2014	13:07:26	0	35	1.0	S
95	5/30/2014	13:08:37	0	28	1.0	S
96	5/30/2014	13:09:46	0	28	1.0	S
97	5/30/2014	13:10:57	0	31	1.0	S
98	5/30/2014	13:12:11	0	33	1.0	S
99	5/30/2014	13:13:26	1	32	1.0	S
100	5/30/2014	13:14:37	0	35	1.0	S
101	5/30/2014	13:17:15	0	16	1.0	S
102	5/30/2014	13:18:53	0	37	1.0	S
103	5/30/2014	13:20:21	0	17	1.0	S
104	5/30/2014	13:21:39	0	31	1.0	S
105	5/30/2014	13:22:53	0	29	1.0	S
106	5/30/2014	13:24:11	0	32	1.0	S
107	5/30/2014	13:25:22	0	33	1.0	S
108	5/30/2014	13:26:40	0	36	1.0	S
109	5/30/2014	13:28:16	0	16	1.0	S
110	5/30/2014	13:29:42	0	27	1.0	S
111	5/30/2014	13:31:07	0	36	1.0	S
112	5/30/2014	13:32:35	0	24	1.0	S
113	5/30/2014	13:34:50	0	32	1.0	S
114	5/30/2014	13:38:53	0	26	1.0	S
115	5/30/2014	13:40:41	0	46	1.0	S
116	5/30/2014	13:41:52	0	34	1.0	S
117	5/30/2014	13:43:49	0	31	1.0	S

(Printed Name)
Surveyor: Robert Minard

(Signature)
Surveyor: Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

118	5/30/2014	13:45:25	0	25	1.0	S
119	5/30/2014	13:46:36	0	30	1.0	S
120	5/30/2014	13:47:55	0	31	1.0	S
121	5/30/2014	13:49:36	0	29	1.0	S
122	5/30/2014	13:50:52	0	27	1.0	S
123	5/30/2014	13:52:02	0	29	1.0	S
124	5/30/2014	13:53:15	0	26	1.0	S
125	5/30/2014	13:54:27	0	29	1.0	S
126	5/30/2014	13:56:32	1	33	1.0	S
127	5/30/2014	13:57:50	0	31	1.0	S
128	5/30/2014	13:59:01	0	33	1.0	S
129	5/30/2014	14:00:53	0	30	1.0	S
130	5/30/2014	14:02:04	0	30	1.0	S
131	5/30/2014	14:03:23	0	35	1.0	S
132	5/30/2014	14:05:01	0	43	1.0	S
133	5/30/2014	14:06:12	0	29	1.0	S
134	5/30/2014	14:07:22	0	25	1.0	S
135	5/30/2014	14:08:36	0	34	1.0	S
136	5/30/2014	14:09:46	0	32	1.0	S
137	5/30/2014	14:11:04	0	25	1.0	S
138	5/30/2014	14:12:26	0	27	1.0	S
139	5/30/2014	14:13:41	0	33	1.0	S
140	5/30/2014	14:15:08	0	26	1.0	S
141	5/30/2014	14:16:48	0	30	1.0	S
142	5/30/2014	14:18:01	0	27	1.0	S
143	5/30/2014	14:19:20	0	32	1.0	S
144	5/30/2014	14:22:55	0	33	1.0	S
145	5/30/2014	14:24:18	1	26	1.0	S
146	5/30/2014	14:26:08	0	34	1.0	S
147	5/30/2014	14:27:19	0	40	1.0	S
148	5/30/2014	14:28:32	0	22	1.0	S
149	5/30/2014	14:29:43	1	31	1.0	S
150	5/30/2014	14:31:01	0	28	1.0	S
151	5/30/2014	14:32:23	0	26	1.0	S
152	5/30/2014	14:33:36	0	40	1.0	S
153	5/30/2014	14:34:46	1	30	1.0	S
154	5/30/2014	14:35:55	0	43	1.0	S
155	5/30/2014	14:37:03	0	20	1.0	S
156	5/30/2014	14:38:17	0	32	1.0	S
157	5/30/2014	14:39:30	1	25	1.0	S
158	5/30/2014	14:40:39	0	18	1.0	S
159	5/30/2014	14:41:51	0	32	1.0	S
160	5/30/2014	14:43:40	0	25	1.0	S
161	5/30/2014	14:44:48	1	25	1.0	S
162	5/30/2014	14:46:04	0	35	1.0	S
163	5/30/2014	14:47:16	0	27	1.0	S
164	5/30/2014	14:48:28	0	36	1.0	S
165	5/30/2014	14:49:41	0	34	1.0	S
166	5/30/2014	14:50:51	0	23	1.0	S
167	5/30/2014	14:52:07	1	30	1.0	S
168	5/30/2014	14:53:29	0	40	1.0	S
169	5/30/2014	14:54:41	1	22	1.0	S
170	5/30/2014	14:56:08	0	45	1.0	S
171	5/30/2014	14:57:48	0	30	1.0	S
172	5/30/2014	14:59:06	0	34	1.0	S

Header 1: Treasure Island
Header 2: 2360 S/N 275724
Header 3: Alpha Bkgd:1.9
Header 4: Beta Bkgd:424.4
Header 5: Bigelow JSS
Header 6: RCT:R.Minard

S=Scaler, R=Ratemeter

Sample #	Date	Time	Alpha	Beta	S/R	Count Time	Location
	05/27/2014	01:01:18 PM	6	571	S	1.0	BKGD
1	05/27/2014	01:03:48 PM	12	524	S	1.0	
2	05/27/2014	01:05:29 PM	2	417	S	1.0	
3	05/27/2014	01:06:51 PM	12	522	S	1.0	
4	05/27/2014	01:08:14 PM	13	626	S	1.0	
5	05/27/2014	01:10:14 PM	8	643	S	1.0	
6	05/27/2014	01:12:04 PM	8	614	S	1.0	
7	05/27/2014	01:14:24 PM	12	660	S	1.0	
8	05/27/2014	01:16:14 PM	6	627	S	1.0	
9	05/27/2014	01:18:46 PM	4	489	S	1.0	
10	05/27/2014	01:49:12 PM	8	457	S	1.0	
11	05/27/2014	01:51:00 PM	7	457	S	1.0	
12	05/27/2014	01:52:21 PM	11	670	S	1.0	
13	05/27/2014	01:54:06 PM	12	621	S	1.0	
14	05/27/2014	01:55:41 PM	12	556	S	1.0	
15	05/27/2014	01:59:14 PM	13	569	S	1.0	
16	05/27/2014	02:00:44 PM	10	635	S	1.0	
17	05/27/2014	02:02:08 PM	6	617	S	1.0	
18	05/27/2014	02:03:32 PM	5	613	S	1.0	
19	05/27/2014	02:04:53 PM	8	654	S	1.0	
20	05/27/2014	02:06:13 PM	12	627	S	1.0	
21	05/27/2014	02:07:35 PM	10	522	S	1.0	
22	05/27/2014	02:08:56 PM	8	582	S	1.0	
23	05/27/2014	02:10:20 PM	5	703	S	1.0	
24	05/27/2014	02:11:39 PM	14	649	S	1.0	
25	05/27/2014	02:13:20 PM	6	577	S	1.0	
26	05/27/2014	02:15:18 PM	6	554	S	1.0	
27	05/27/2014	02:16:34 PM	9	550	S	1.0	
28	05/27/2014	02:17:51 PM	8	544	S	1.0	
29	05/27/2014	02:19:10 PM	7	536	S	1.0	
30	05/27/2014	02:20:29 PM	6	540	S	1.0	
31	05/27/2014	02:21:48 PM	12	535	S	1.0	
32	05/28/2014	08:35:43 AM	13	592	S	1.0	
33	05/28/2014	08:37:06 AM	9	519	S	1.0	
34	05/28/2014	08:38:26 AM	12	601	S	1.0	
35	05/28/2014	08:40:03 AM	9	657	S	1.0	
36	05/28/2014	08:41:32 AM	6	597	S	1.0	
37	05/28/2014	08:43:20 AM	8	550	S	1.0	
38	05/28/2014	08:45:16 AM	7	575	S	1.0	
39	05/28/2014	08:46:38 AM	5	573	S	1.0	
40	05/28/2014	08:47:56 AM	9	588	S	1.0	
41	05/28/2014	08:49:48 AM	6	568	S	1.0	
42	05/28/2014	08:51:18 AM	7	552	S	1.0	
43	05/28/2014	08:52:40 AM	7	577	S	1.0	
44	05/28/2014	08:53:59 AM	4	507	S	1.0	
45	05/28/2014	08:55:15 AM	6	565	S	1.0	
46	05/28/2014	08:56:33 AM	2	543	S	1.0	
47	05/28/2014	08:57:54 AM	13	563	S	1.0	
48	05/28/2014	08:59:12 AM	12	526	S	1.0	
49	05/28/2014	09:00:33 AM	9	590	S	1.0	
50	05/28/2014	09:01:49 AM	5	560	S	1.0	
51	05/28/2014	09:03:08 AM	4	566	S	1.0	
52	05/28/2014	09:04:26 AM	5	575	S	1.0	
53	05/28/2014	09:05:50 AM	5	578	S	1.0	
54	05/28/2014	09:07:09 AM	12	559	S	1.0	
55	05/28/2014	09:08:28 AM	8	600	S	1.0	
56	05/28/2014	09:09:55 AM	9	577	S	1.0	
57	05/28/2014	09:37:39 AM	10	533	S	1.0	
58	05/28/2014	09:39:04 AM	11	530	S	1.0	

(Printed Name)
Surveyor: Robert Minard
(Signature)
Surveyor: Date: 6/6/2014
Survey Number: TIRS- 05202014 BGC JSS 083

59	05/28/2014	09:40:30	AM	15	548	S	1.0
60	05/28/2014	09:42:52	AM	10	498	S	1.0
61	05/28/2014	09:44:27	AM	6	511	S	1.0
62	05/28/2014	09:45:59	AM	9	524	S	1.0
63	05/28/2014	09:47:19	AM	10	530	S	1.0
64	05/28/2014	09:48:40	AM	9	511	S	1.0
65	05/28/2014	09:50:02	AM	13	517	S	1.0
66	05/28/2014	09:51:20	AM	5	498	S	1.0
67	05/28/2014	09:52:38	AM	4	507	S	1.0
68	05/28/2014	09:54:12	AM	11	512	S	1.0
69	05/28/2014	09:55:33	AM	16	541	S	1.0
70	05/28/2014	09:57:22	AM	7	527	S	1.0
71	05/28/2014	10:00:14	AM	19	558	S	1.0
72	05/28/2014	10:01:42	AM	7	567	S	1.0
73	05/28/2014	10:02:52	AM	8	563	S	1.0
74	05/28/2014	10:04:13	AM	12	551	S	1.0
75	05/28/2014	10:05:29	AM	9	573	S	1.0
76	05/28/2014	10:06:47	AM	6	559	S	1.0
77	05/28/2014	10:08:05	AM	4	547	S	1.0
78	05/28/2014	10:09:33	AM	6	498	S	1.0
79	05/28/2014	10:10:50	AM	10	581	S	1.0
80	05/28/2014	10:12:06	AM	7	542	S	1.0
81	05/28/2014	10:13:22	AM	5	604	S	1.0
82	05/28/2014	10:14:43	AM	6	601	S	1.0
83	05/28/2014	10:16:05	AM	8	579	S	1.0
84	05/28/2014	10:17:29	AM	9	592	S	1.0
85	05/28/2014	10:18:47	AM	9	593	S	1.0
86	05/28/2014	10:20:25	AM	11	595	S	1.0
87	05/28/2014	10:21:37	AM	11	587	S	1.0
88	05/28/2014	10:22:52	AM	6	585	S	1.0
89	05/28/2014	10:24:32	AM	10	535	S	1.0
90	05/28/2014	10:25:53	AM	10	562	S	1.0
91	05/28/2014	10:27:14	AM	4	545	S	1.0
92	05/28/2014	10:28:54	AM	9	560	S	1.0
93	05/28/2014	10:30:33	AM	9	490	S	1.0
94	05/28/2014	10:32:13	AM	8	536	S	1.0
95	05/28/2014	10:42:44	AM	10	506	S	1.0
96	05/28/2014	10:44:10	AM	9	539	S	1.0
97	05/28/2014	10:45:34	AM	11	511	S	1.0
98	05/28/2014	10:47:04	AM	9	476	S	1.0
99	05/28/2014	10:48:23	AM	10	492	S	1.0
100	05/28/2014	10:49:42	AM	9	562	S	1.0
101	05/28/2014	10:50:59	AM	15	505	S	1.0
102	05/28/2014	10:52:29	AM	7	515	S	1.0
103	05/28/2014	10:54:26	AM	6	566	S	1.0
104	05/28/2014	10:55:54	AM	10	536	S	1.0
105	05/28/2014	10:57:33	AM	7	512	S	1.0
106	05/28/2014	10:59:13	AM	6	538	S	1.0
107	05/28/2014	11:00:56	AM	7	541	S	1.0
108	05/28/2014	11:02:37	AM	2	586	S	1.0
109	05/28/2014	11:04:26	AM	5	534	S	1.0
110	05/28/2014	11:06:01	AM	7	522	S	1.0
111	05/28/2014	11:07:55	AM	8	572	S	1.0
112	05/28/2014	11:09:25	AM	9	593	S	1.0
113	05/28/2014	11:10:59	AM	14	575	S	1.0
114	05/28/2014	11:12:28	AM	4	557	S	1.0
115	05/28/2014	11:14:04	AM	6	550	S	1.0
116	05/28/2014	11:15:38	AM	13	539	S	1.0
117	05/28/2014	11:17:17	AM	10	550	S	1.0
118	05/28/2014	11:18:50	AM	3	606	S	1.0
119	05/28/2014	12:15:48	PM	8	618	S	1.0
120	05/28/2014	12:17:16	PM	10	604	S	1.0
121	05/28/2014	12:18:40	PM	15	635	S	1.0
122	05/28/2014	12:19:57	PM	10	593	S	1.0
123	05/28/2014	12:21:17	PM	10	579	S	1.0
124	05/28/2014	12:22:36	PM	7	574	S	1.0
125	05/28/2014	12:24:18	PM	16	541	S	1.0
126	05/28/2014	12:26:17	PM	8	600	S	1.0
127	05/28/2014	12:27:41	PM	8	565	S	1.0
128	05/28/2014	12:29:02	PM	5	538	S	1.0

(Printed Name)
Surveyor: Robert Minard
(Signature)
Surveyor: Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

129	05/28/2014	12:30:21	PM	5	610	S	1.0
130	05/28/2014	12:31:51	PM	11	617	S	1.0
131	05/28/2014	12:33:32	PM	11	559	S	1.0
132	05/28/2014	12:35:41	PM	10	520	S	1.0
133	05/28/2014	12:37:30	PM	9	559	S	1.0
134	05/28/2014	01:19:13	PM	8	502	S	1.0
135	05/28/2014	01:20:44	PM	6	502	S	1.0
136	05/28/2014	01:22:11	PM	8	495	S	1.0
137	05/28/2014	01:23:29	PM	7	536	S	1.0
138	05/28/2014	01:24:52	PM	4	495	S	1.0
139	05/28/2014	01:27:45	PM	11	517	S	1.0
140	05/28/2014	01:29:34	PM	5	534	S	1.0
141	05/28/2014	01:31:52	PM	10	521	S	1.0
142	05/28/2014	01:33:31	PM	10	562	S	1.0
143	05/28/2014	01:35:13	PM	10	552	S	1.0
144	05/28/2014	01:40:41	PM	10	594	S	1.0
145	05/28/2014	01:43:04	PM	5	587	S	1.0
146	05/28/2014	01:44:29	PM	9	530	S	1.0
147	05/28/2014	01:45:49	PM	14	541	S	1.0
148	05/28/2014	01:47:04	PM	5	567	S	1.0
149	05/28/2014	01:48:44	PM	6	519	S	1.0
150	05/28/2014	01:50:39	PM	11	507	S	1.0
151	05/28/2014	01:52:17	PM	4	544	S	1.0
152	05/28/2014	01:55:38	PM	7	576	S	1.0
153	05/28/2014	01:57:12	PM	12	547	S	1.0
154	05/28/2014	02:00:05	PM	10	566	S	1.0
155	05/28/2014	02:02:46	PM	10	547	S	1.0
156	05/28/2014	02:04:01	PM	9	593	S	1.0
157	05/28/2014	02:06:18	PM	6	534	S	1.0
158	05/28/2014	02:07:39	PM	5	573	S	1.0
159	05/28/2014	02:09:01	PM	4	518	S	1.0
160	05/29/2014	07:45:29	AM	5	536	S	1.0
161	05/29/2014	07:47:09	AM	4	598	S	1.0
162	05/29/2014	07:48:34	AM	6	564	S	1.0
163	05/29/2014	07:49:58	AM	3	573	S	1.0
164	05/29/2014	07:51:19	AM	6	546	S	1.0
165	05/29/2014	07:53:00	AM	8	640	S	1.0
166	05/29/2014	07:54:18	AM	9	544	S	1.0
167	05/29/2014	07:55:33	AM	1	502	S	1.0
168	05/29/2014	07:57:07	AM	4	526	S	1.0
169	05/29/2014	07:58:45	AM	1	482	S	1.0
170	05/29/2014	08:00:42	AM	3	456	S	1.0
171	05/29/2014	08:02:06	AM	3	458	S	1.0
172	05/29/2014	08:04:09	AM	4	495	S	1.0
173	05/29/2014	08:54:18	AM	9	522	S	1.0
174	05/29/2014	08:55:42	AM	9	511	S	1.0
175	05/29/2014	08:57:00	AM	7	509	S	1.0
176	05/29/2014	08:58:15	AM	6	528	S	1.0
177	05/29/2014	08:59:35	AM	7	510	S	1.0
178	05/29/2014	09:08:04	AM	6	503	S	1.0
179	05/29/2014	09:09:25	AM	3	471	S	1.0
180	05/29/2014	09:10:42	AM	6	465	S	1.0
181	05/29/2014	09:11:57	AM	9	504	S	1.0
182	05/29/2014	09:13:15	AM	10	480	S	1.0
183	05/29/2014	09:14:33	AM	6	479	S	1.0
184	05/29/2014	09:15:50	AM	8	517	S	1.0
185	05/29/2014	09:17:16	AM	6	522	S	1.0
186	05/29/2014	09:18:41	AM	3	541	S	1.0
187	05/29/2014	09:20:27	AM	10	444	S	1.0
188	05/29/2014	09:21:47	AM	13	470	S	1.0
189	05/29/2014	09:23:12	AM	13	508	S	1.0
190	05/29/2014	09:24:37	AM	10	481	S	1.0
191	05/29/2014	09:26:02	AM	12	514	S	1.0
192	05/29/2014	09:27:52	AM	11	446	S	1.0
193	05/29/2014	09:29:14	AM	14	418	S	1.0
194	05/29/2014	09:31:59	AM	10	454	S	1.0
195	05/29/2014	09:36:29	AM	7	431	S	1.0
196	05/29/2014	09:38:11	AM	11	466	S	1.0
197	05/29/2014	09:39:43	AM	9	500	S	1.0
198	05/29/2014	09:41:29	AM	11	477	S	1.0
199	05/29/2014	09:43:15	AM	7	481	S	1.0
200	05/29/2014	09:44:43	AM	5	460	S	1.0
201	05/29/2014	09:46:39	AM	8	468	S	1.0

Printed Name

Surveyor: Robert Minard

Signature

Surveyor: Date: 6/6/2014

Survey Number: TIRS- 05202014 BGC JSS 083

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05132014 BGC GWS 050

Survey Description:

Gamma walkover survey performed at Bigelow Court on the concrete around Building 1101. Area scanned with 2221 and NaI detector at scan rate of a half meter per second with probe at four inches from surface area. The purpose of this survey is to identify possible commodities or areas of elevated activity.

Note: Investigation Level of asphalt that is indicated in survey meter section is for reference only.

RWP: 2013 BGC JS 01 0

Start Date: 5/13/2014 **Time:** 1100 **End Date:** 5/13/2014 **Time:** 1440

(Printed Name) **Surveyor:** Robert Minard

(Signature) **Surveyor:** [signature] Date: 5/20/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm²):		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm²):		
Cal. Due:		Count Time(min):		
Probe Area(cm²):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	268642	Serial #:	
Cal. Due:	03/27/2015	Cal. Due:	
Ref Area BKG(Scan)	15441	Bkgd (lab):	
Ref Area IL(Scan)	18486	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
See Map														Scan Range: 9,845 - 16,944 cpm

Approved By: [signature] Takeshi Ibuki — Print Name; [signature] — Signature; RE — Title; 5/20/2014 — Date

FRM-TI-01-1

Gamma Walkover Survey at Bigelow Court
Concrete Around Building 1101

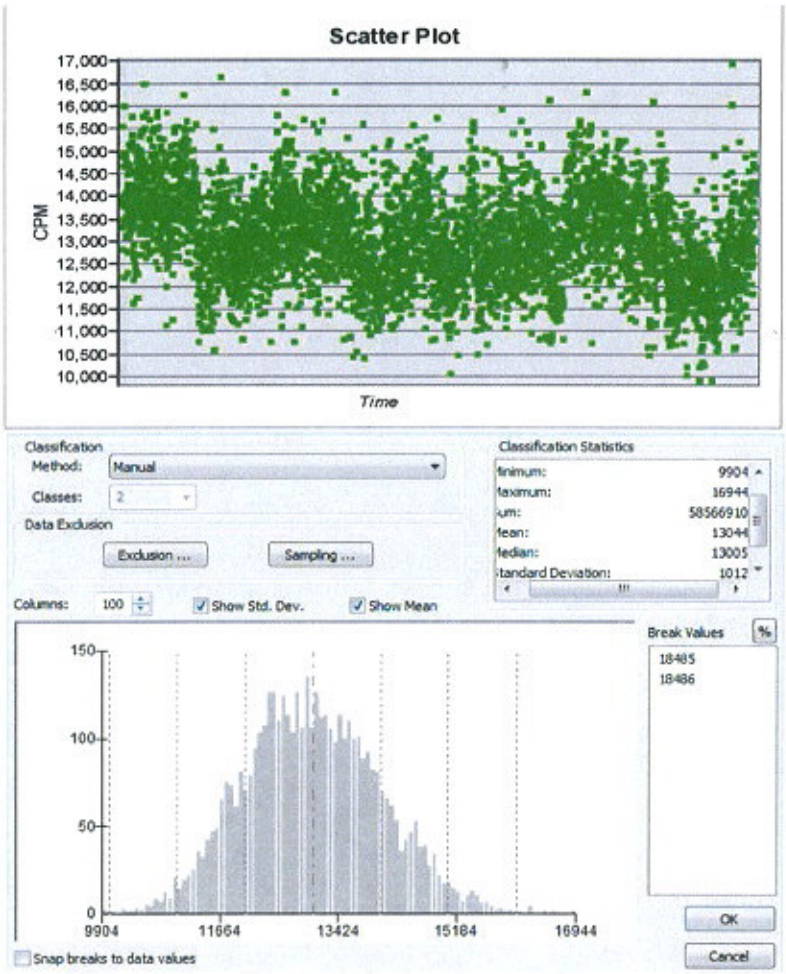
Survey Number:
TIRS-05132014-BGC-GWS-050

Data Processed In Treasure Island Office

Reviewed By: _____ **Date** 5/20/2014

Gamma Walkover Survey of Concrete Around Building 1101

In the 9000s	In the 10000s	In the 11000s	In the 12000s	In the 13000s	In the 14000s	In the 15000s	In the 16000s
2	62	633	1538	1464	664	117	10



CB&I Federal Services

RADIOLOGICAL SURVEY FORM / SAMPLE COLLECTION LOG

Survey Number: TIRS- 05212014 BGC JSS 076

Survey Description: Concrete/Soil sampling: Gamma statics and exposure rates collected at Building 1101 Sidewalk concrete. Samples were taken below Sidewalk Concrete. Purpose of sampling is to determine radiological status of area.

*1:Removable contamination survey and contact exposure rate survey performed on sample jars and cooler Prior to being released from a controlled area.

*2: Exposure rate survey at 10 cm performed on actual sampling locations.

Note: Reference used for Survey Instrument #3:Asphalt BKG (Static-15,409 and Area IL Static-16,879) used for Concrete.

Weather: Sunny Temp: 75 °F Wind: 0 - 5 mph

Offsite Analysis Requested: Gamma Spec : Chain of Custody No:TI_Biglo1101_004

RWP: 2013 BGC JS 01 1

Start Date: 5/21/2014 **Time:** 1230 **End Date:** 5/22/2014 **Time:** 0800

Surveyor: (Printed Name) Dennis Morrison Lester Sharp

Surveyor: (Signature) Date: 6-3-14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	33.3%	29.6%
Serial #:	227355	Bkgd (lab) CPM:	0.3	31.8
Probe / #:		MDA (dpm/100cm^2) :	17	99
Cal. Due:	5/29/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)		
Model:	2221	Model:	19	
Serial #:	97290	Serial #:	72162	
Cal. Due:	4/30/2015	Cal. Due:	02/10/2015	
Ref Area BKG(Static)	17961	Bkgd (lab):	5	µR/hr
Ref Area IL(Static)	21150	Area Bkgd	6	µR/hr
Site	Location7	Sat/Unsat:	sat	

Sampling Location No.	Sampling Time	*1 Removable Contamination #1				Gamma #3 cpm			Exposure Rate #4 µR/hr		Sample ID No.	Sample Description/Comments
		cpm/100 cm2		dpm/100 cm2		10 cm Above		15 cm Depth	Contact Gross *1	10 cm Gross *2		
		α	β/γ	α	β/γ	Gross	< IL?	Gross				
1	1240	0	38	<MDA	<MDA	13777	<IL	14000	6	6	TI-BGC1101-CRTSWCH-001	Sidewalk Concrete
2	1253	1	34	<MDA	<MDA	14095	<IL	14715	6	6	TI-BGC1101-CRTSWCH-002	Sidewalk Concrete
3	1315	0	32	<MDA	<MDA	13647	<IL	14882	6	6	TI-BGC1101-CRTSWCH-003	Sidewalk Concrete
4	1305	0	35	<MDA	<MDA	14539	<IL	14798	6	6	TI-BGC1101-CRTSWCH-004	Sidewalk Concrete
5	1245	0	33	<MDA	<MDA	14337	<IL	14157	6	6	TI-BGC1101-SBSWCH-005	Soil Under Sidewalk
6	1257	0	33	<MDA	<MDA	13747	<IL	16273	6	6	TI-BGC1101-SBSWCH-006	Soil Under Sidewalk
7	1320	0	34	<MDA	<MDA	15580	<IL	15839	6	6	TI-BGC1101-SBSWCH-007	Soil Under Sidewalk
8	1310	0	32	<MDA	<MDA	15318	<IL	15417	6	6	TI-BGC1101-SBSWCH-008	Soil Under Sidewalk
9		2	25	<MDA	<MDA							Interior of Cooler
10		1	31	<MDA	<MDA							Exterior of Cooler

Approved By: Takeshi Ibuki *Print Name* — *Signature* — RE *Title* — 6/4/2014 *Date*

FRM-TI-01-1

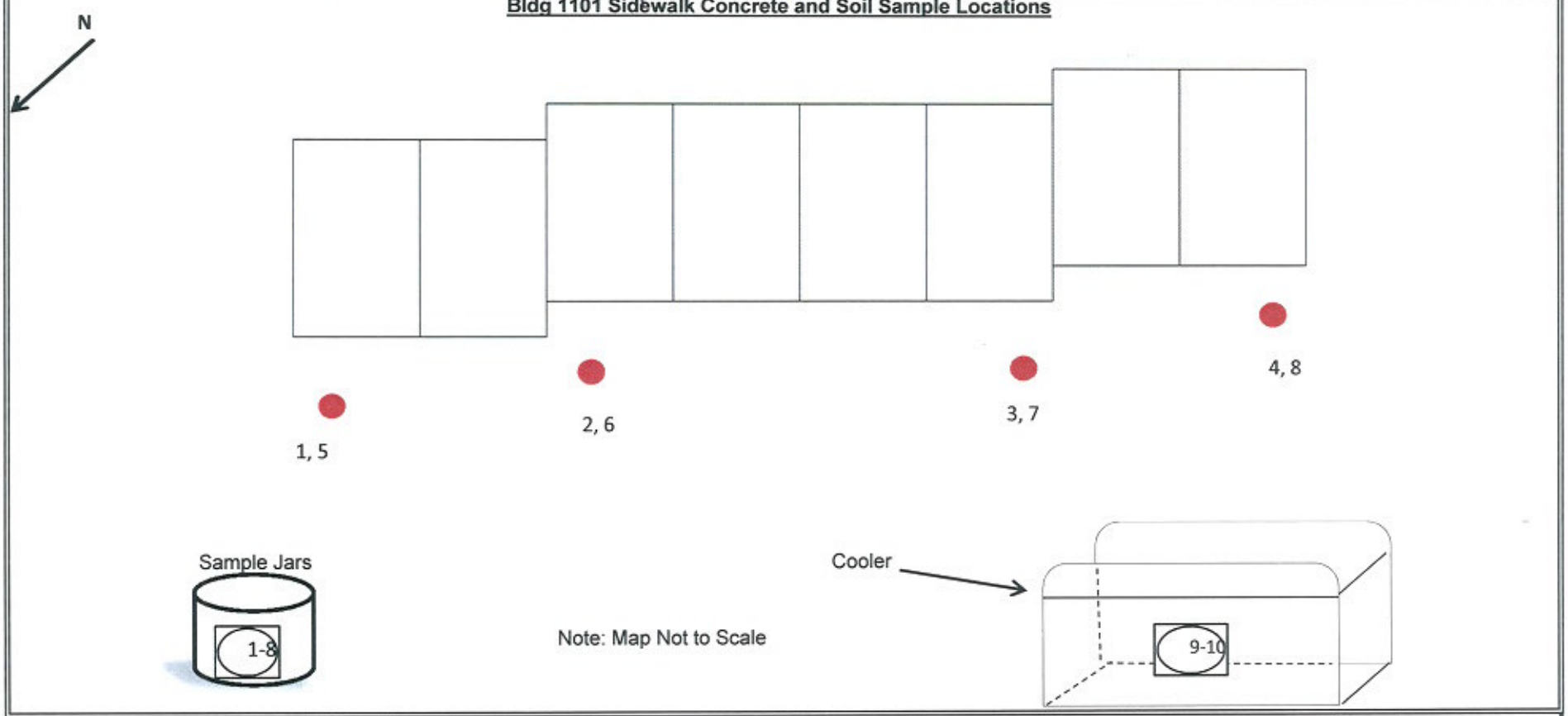
Shaw Environmental, Inc.

(Printed Name) **Surveyor:** Dennis Morrison Lester Sharp

(Signature) **Surveyor:** Lester Sharp Date: 6-3-14

Survey Number: TIRS- 05212014 BGC JSS 076

Bldg 1101 Sidewalk Concrete and Soil Sample Locations



Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/22/2014
7:38:53 AM

Header 1: Treasure Island
Header 2: 3030 S/N 227355
Header 3: Alpha BKGD:0.3
Header 4: Beta BKGD: 31.8
Header 5: BGC-1101-076
Header 6: RCT:D. Morrison

Calibration Due Date: 5/29/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/22/2014	07:19:50	0	38	1.0	S	
2	5/22/2014	07:21:12	1	34	1.0	S	
3	5/22/2014	07:22:30	0	32	1.0	S	
4	5/22/2014	07:29:05	0	35	1.0	S	
5	5/22/2014	07:30:25	0	33	1.0	S	
6	5/22/2014	07:31:59	0	33	1.0	S	
7	5/22/2014	07:33:12	0	34	1.0	S	
8	5/22/2014	07:34:42	0	32	1.0	S	
9	5/22/2014	07:35:55	2	25	1.0	S	
10	5/22/2014	07:37:25	1	31	1.0	S	

(Printed Name)
Surveyor: Dennis Morrison Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: 6-3-14
Survey Number: TIRS- 05212014 BGC JSS 076

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- **05292014** **BGC** **JSS** **095**

Survey Description:

Gamma Walkover Survey performed at Bigelow Court Building 1101 and 1103 sidewalk underside of concrete foundation.
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine any presence of anomalies on underside of the concrete foundation.
No indication of anomalies identified.
Asphalt investigation level (IL) shown in instrument section is for reference only.

RWP: 2014 BGC JS 01 0

Start Date: 5/29/2014 **Time:** 0900 **End Date:** 5/29/2014 **Time:** 1407

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** Date: 05/29/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
1101/1103 Sidewalk														Scan Range:16,278-23,565 CPM

Approved By: Takeshi Ibuki — *Print Name* — *Signature* — RE — *Title* — 7/7/2014 — *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- **06022014** **BGC** **GWS** **106**

Survey Description:

Gamma Walkover Survey performed with Ludlum 2221/44-20 at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of soil and observing both audio and visual meter response. The purpose of this survey is to establish radiological conditions after removal of concrete from building 1101 sidewalk.

Note: No follow up statics required on associated positions greater than the IL's due to media being resurveyed on RSY PADS.

RWP: 2014 BGC JS 01 0

Start Date: 6/2/2014 **Time:** 1150 **End Date:** 6/2/2014 **Time:** 1400

(Printed Name) **Surveyor:** Robert Minard

(Signature) **Surveyor:** [signature] Date: 7/9/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	17635	Bkgd (lab):	
Ref Area IL(Scan)	21119	Area Bkgd	
Site	Location7	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
See Map														Scan Range: 15,343 - 22,709cpm

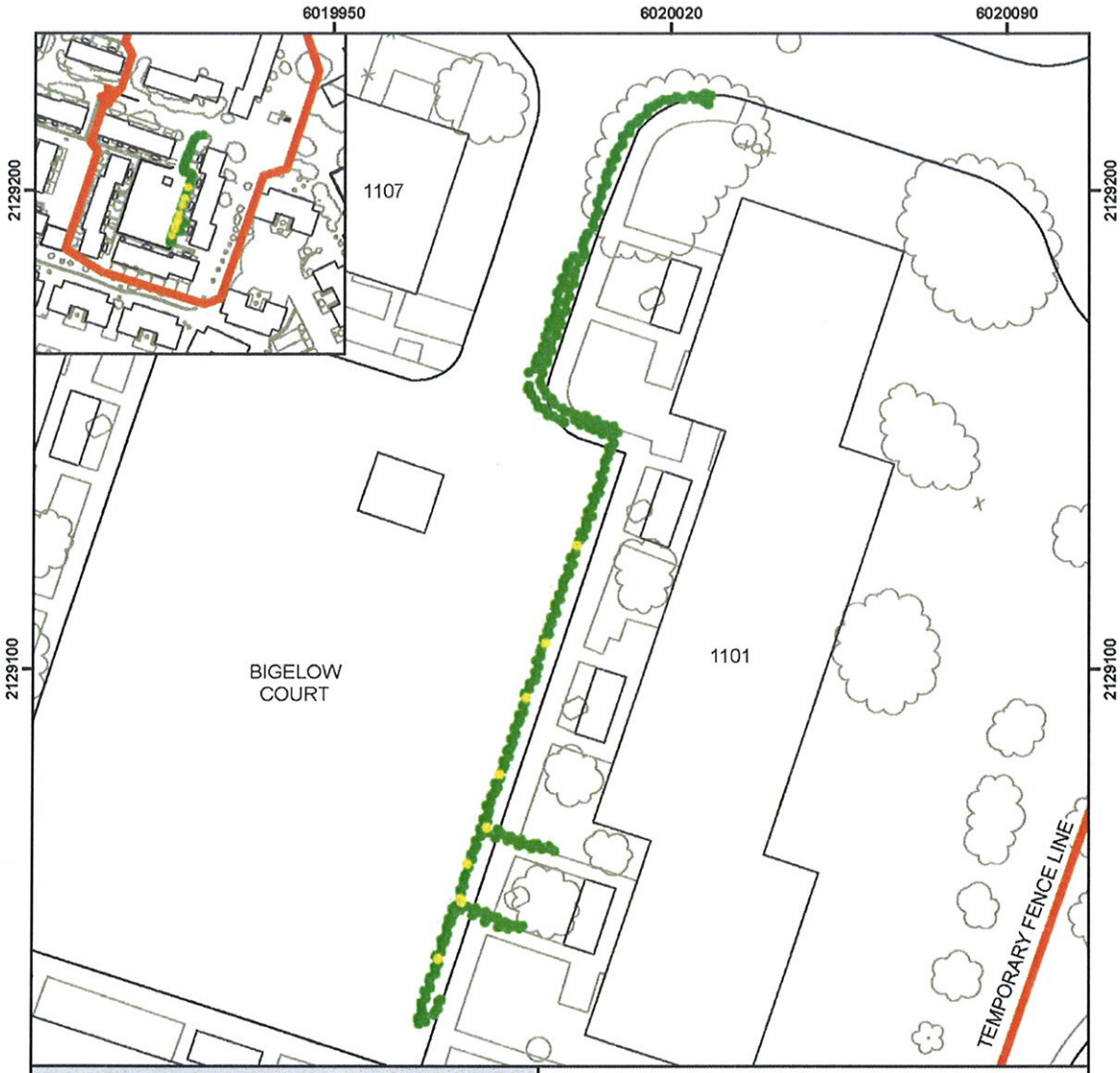
Approved By: Takeshi Ibuki [signature] RE 7/11/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

Gamma Walkover Survey at Bigelow Court
Soil Under Sidewalks in Front of Building 1101

Survey Number:
TIRS-06022014-BGC-GWS-106

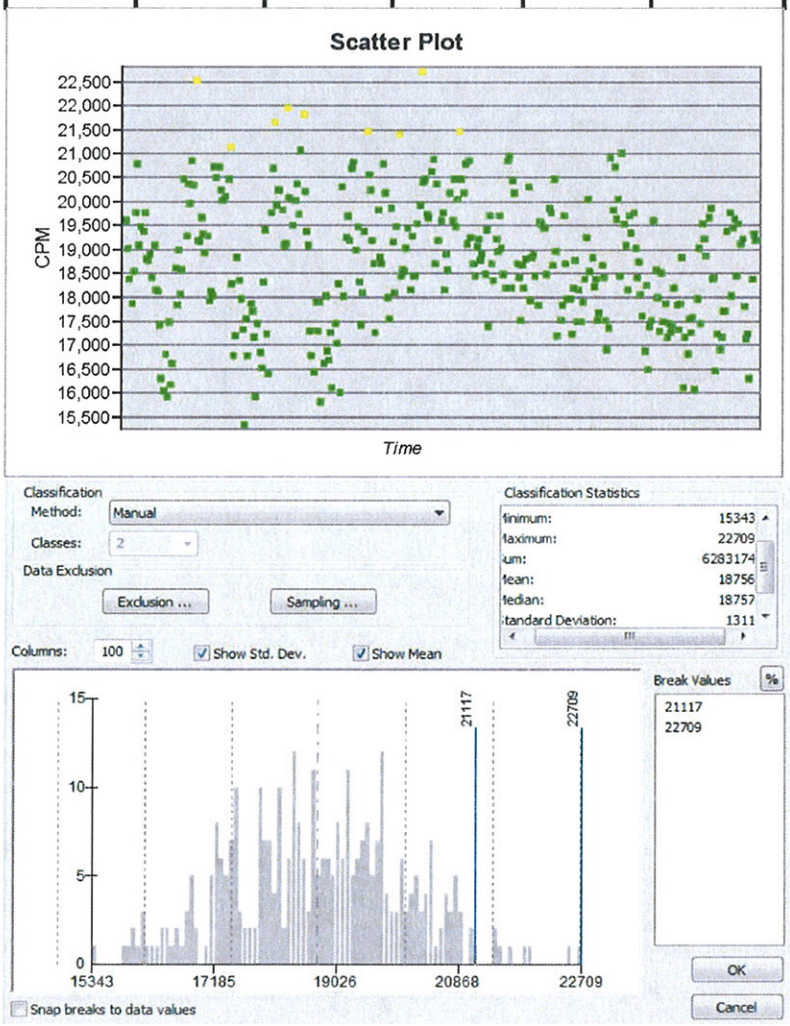


Data Processed In Treasure Island Office

Reviewed By: _____ **Date** 7/11/2014

Gamma Walkover Survey of Soil Under Sidewalks in Front of Building 1101

In the 15000s	In the 16000s	In the 17000s	In the 18000s	In the 19000s	In the 20000s	In the 21000s	In the 22000s
4	26	68	88	88	50	9	2



RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- **06272014** **BGC** **GWS** **187**

Survey Description: Bigelow Court - Gamma Walkover Survey performed with Ludlum 2221/44-20 at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of soil and observing both audio and visual meter response. The purpose of this survey is to determine the activity in soil from Building 1101 post side walk and patio concrete removal.

RWP: 2014 BGC JS 01 0

Start Date: 6/27/2014 **Time:** 1000 **End Date:** 6/27/2014 **Time:** 1315

(Printed Name) **Surveyor:** Dennis Morrison

(Signature) **Surveyor:** [signature] Date: 7-9-14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	17635	Bkgd (lab):	
Ref Area IL(Scan)	21119	Area Bkgd	
Site	Location7	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross		30 cm Gross	
1101														Scan Range: 10,395 - 19,676 cpm

Approved By: Takeshi Ibuki [signature] RE 7/9/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

Gamma Walkover Survey at Bigelow Court
Soil Under Concrete Patios in Front of Building 1101

Survey Number:
TIRS-06272014-BGC-GWS-187

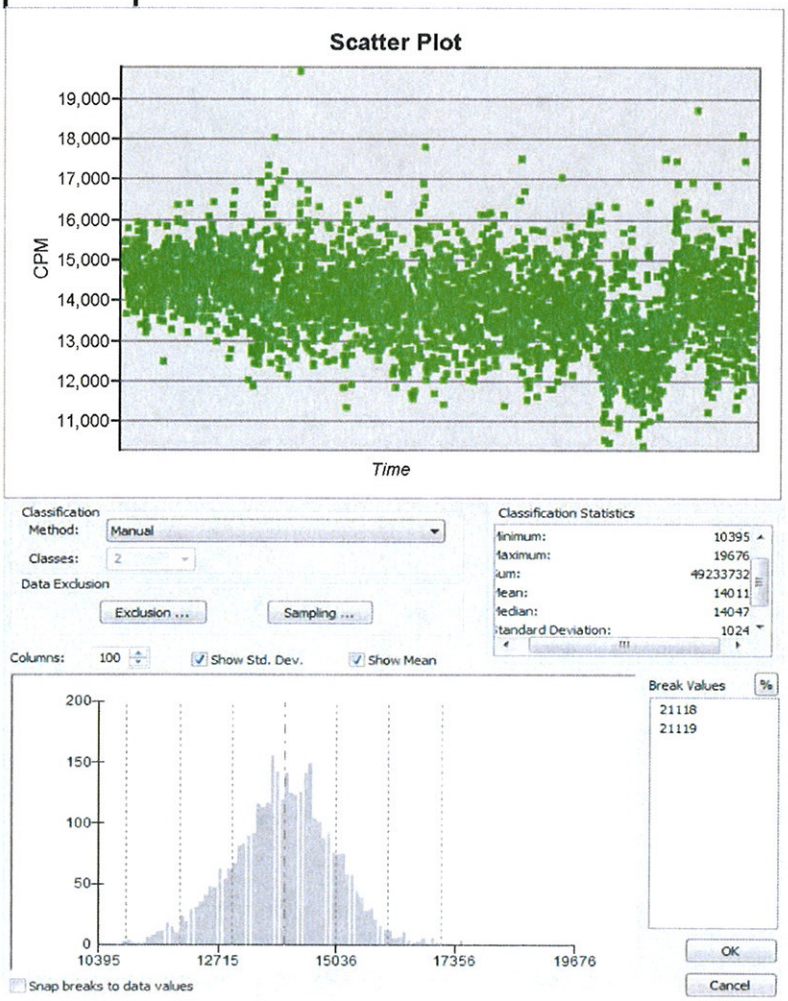
Data Processed In Treasure Island Office

Reviewed By: _____ **Date** 7/9/2014

Gamma Walkover Survey of Soil Under Patios in Front of Building 1101

In the 10000s	In the 11000s	In the 12000s	In the 13000s	In the 14000s	In the 15000s	In the 16000s	In the 17000s
10	94	451	1154	1257	474	61	9

In the 18000s	In the 19000s
3	1



Analytical Result Summary of Bigelow Court Building 1101

Concrete Foundation Sample Results			
Sample Identification	Sample Media	Type of Sample	Final ^{226}Ra Results (pCi/g)
TIBGC1101-CRTFDCH-001	Concrete Foundation	Waste Char.	0.407
TIBGC1101-CRTFDCH-002	Concrete Foundation	Waste Char.	0.467
TIBGC1101-CRTFDCH-003	Concrete Foundation	Waste Char.	0.403
TIBGC1101-CRTFDCH-004	Concrete Foundation	Waste Char.	0.392
TIBGC1101-CRTFDCH-005	Concrete Foundation	Waste Char.	0.326
TIBGC1101-CRTFDCH-006	Concrete Foundation	Waste Char.	0.599
TIBGC1101-CRTFDCH-007	Concrete Foundation	Waste Char.	0.516
TIBGC1101-CRTFDCH-008	Concrete Foundation	Waste Char.	0.429
TIBGC1101-CRTFDCH-009	Concrete Foundation	Waste Char.	0.472
TIBGC1101-CRTFDCH-010	Concrete Foundation	Waste Char.	0.490
TIBGC1101-CRTFDCH-011	Concrete Foundation	Waste Char.	0.459
TIBGC1101-CRTFDCH-012	Concrete Foundation	Waste Char.	0.546
TIBGC1101-CRTFDCH-013	Concrete Foundation	Waste Char.	0.301
TIBGC1101-CRTFDCH-014	Concrete Foundation	Waste Char.	0.389
TIBGC1101-CRTFDCH-015	Concrete Foundation	Waste Char.	0.438
TIBGC1101-CRTFDCH-016	Concrete Foundation	Waste Char.	0.456
Soil Sample Beneath Concrete Results			
TIBGC1101-SBFDCH-001	Soil Beneath Foundation	Waste Char.	0.456
TIBGC1101-SBFDCH-002	Soil Beneath Foundation	Waste Char.	0.340
TIBGC1101-SBFDCH-003	Soil Beneath Foundation	Waste Char.	0.440
TIBGC1101-SBFDCH-004	Soil Beneath Foundation	Waste Char.	0.417
TIBGC1101-SBFDCH-005	Soil Beneath Foundation	Waste Char.	0.361
TIBGC1101-SBFDCH-006	Soil Beneath Foundation	Waste Char.	0.517
TIBGC1101-SBFDCH-007	Soil Beneath Foundation	Waste Char.	0.449
TIBGC1101-SBFDCH-008	Soil Beneath Foundation	Waste Char.	0.537
TIBGC1101-SBFDCH-009	Soil Beneath Foundation	Waste Char.	0.396
TIBGC1101-SBFDCH-010	Soil Beneath Foundation	Waste Char.	0.473
TIBGC1101-SBFDCH-011	Soil Beneath Foundation	Waste Char.	0.406
TIBGC1101-SBFDCH-012	Soil Beneath Foundation	Waste Char.	0.575
TIBGC1101-SBFDCH-013	Soil Beneath Foundation	Waste Char.	0.568
TIBGC1101-SBFDCH-014	Soil Beneath Foundation	Waste Char.	0.427
TIBGC1101-SBFDCH-015	Soil Beneath Foundation	Waste Char.	0.325
TIBGC1101-SBFDCH-016	Soil Beneath Foundation	Waste Char.	0.507
Concrete Sidewalk Sample Results			
TIBGC1101-CRTSWCH-001	Concrete Sidewalk	Waste Char.	0.327
TIBGC1101-CRTSWCH-002	Concrete Sidewalk	Waste Char.	0.362
TIBGC1101-CRTSWCH-003	Concrete Sidewalk	Waste Char.	0.262
TIBGC1101-CRTSWCH-004	Concrete Sidewalk	Waste Char.	0.213
Soil Sample Beneath Concrete Sidewalk Results			
TIBGC1101=SBSWCH-005	Soil Beneath Sidewalk	Waste Char.	0.266
TIBGC1101=SBSWCH-006	Soil Beneath Sidewalk	Waste Char.	0.532
TIBGC1101=SBSWCH-007	Soil Beneath Sidewalk	Waste Char.	0.480
TIBGC1101=SBSWCH-008	Soil Beneath Sidewalk	Waste Char.	0.515

* Sample with highest activity is highlighted.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-6790-2
Client Project/Site: Bigelow CT 140422

For:
Shaw Environmental &Infrastructure CB&I
4005 Port Chicago Highway
Concord, California 94520-1120

Attn: Ms. Patricia Flynn

Authorized for release by:
6/20/2014 11:18:54 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

Table of Contents

Job ID: 160-6790-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Shaw Environmental &Infrastructure CB&I

Project: Bigelow CT 140422

Report Number: 160-6790-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-6790-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 5/22/2014 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 21.6º C and 21.6º C.

RADIUM 226 (21 DAY INGROWTH)

Samples TIBGC1101-CRTFDCH-001 (160-6790-1), TIBGC1101-CRTFDCH-002 (160-6790-2), TIBGC1101-CRTFDCH-003 (160-6790-3), TIBGC1101-CRTFDCH-004 (160-6790-4), TIBGC1101-CRTFDCH-005 (160-6790-5), TIBGC1101-CRTFDCH-006 (160-6790-6), TIBGC1101-CRTFDCH-007 (160-6790-7), TIBGC1101-CRTFDCH-008 (160-6790-8), TIBGC1101-CRTFDCH-009 (160-6790-9), TIBGC1101-CRTFDCH-010 (160-6790-10), TIBGC1101-CRTFDCH-011 (160-6790-11), TIBGC1101-CRTFDCH-012 (160-6790-12), TIBGC1101-CRTFDCH-013 (160-6790-13), TIBGC1101-CRTFDCH-014 (160-6790-14), TIBGC1101-CRTFDCH-015 (160-6790-15) and TIBGC1101-CRTFDCH-016 (160-6790-16) were analyzed for Radium 226 (21 day ingrowth) in accordance with DOE GA-01-R. The samples were prepared on 05/27/2014 and analyzed on 06/17/2014.

Lead-214 analyzed by gamma spectroscopy was detected above the MDC in the method blank. Variations in Compton backgrounds and statistical analyses allow for small area counts in the ROIs of this nuclide. Other Uranium decay chain products are not present in the blank to support Lead-214 identification. The data is reported. (160-6790-1 DU), (LCS 160-123978/2-A), (MB 160-123978/1-A), TIBGC1101-CRTFDCH-001 (160-6790-1), TIBGC1101-CRTFDCH-002 (160-6790-2), TIBGC1101-CRTFDCH-003 (160-6790-3), TIBGC1101-CRTFDCH-004 (160-6790-4), TIBGC1101-CRTFDCH-005 (160-6790-5), TIBGC1101-CRTFDCH-006 (160-6790-6), TIBGC1101-CRTFDCH-007 (160-6790-7), TIBGC1101-CRTFDCH-008 (160-6790-8), TIBGC1101-CRTFDCH-009 (160-6790-9), TIBGC1101-CRTFDCH-010 (160-6790-10), TIBGC1101-CRTFDCH-011 (160-6790-11), TIBGC1101-CRTFDCH-012 (160-6790-12), TIBGC1101-CRTFDCH-013 (160-6790-13), TIBGC1101-CRTFDCH-014 (160-6790-14), TIBGC1101-CRTFDCH-015 (160-6790-15), TIBGC1101-CRTFDCH-016 (160-6790-16)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHAIN OF CUSTODY

Ref. Document # TI_Biglo1101_002

Page 1 of 2

Shaw Environmental and Infrastructure Inc. (a CB&I company)
Federal Services Division
4005 Port Chicago Hwy
Concord, CA 94520

Project Number: 140422
Project Name / Location: Bigelow Ct Building 1101 Foundation
Purchase Order #: 1106746

Project Manager: Ulrika Messer (Name & phone #)

Shipment Date: 5/21/14
Waybill Number: UPS 1Z66V5450255214 5 6
Lab Destination: Earth Toxics Inc To Test America
Lab Contact Name / ph. #: Mike Dryden

Send Report To: Patricia Flynn
Phone/Fax Number: 925-288-2037
Address: 4005 Port Chicago Hwy
City: Concord, CA, 94520

Sampler's Name(s):

Sample ID Number	Sample Description	Collection Information: Date	Time	Method	Matrix	# of containers	Container Type	Gamma Scan	Analyses Requested: Dose Rate µR/Hr
							Preservative (water)		
							Preservative (soil)	N/A	
TIBGC1101-CRTFDCH-001	Building 1101 Foundation Concrete	5-20-14	1230	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-002	Building 1101 Foundation Concrete	5-20-14	1232	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-003	Building 1101 Foundation Concrete	5-20-14	1248	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-004	Building 1101 Foundation Concrete	5-20-14	1245	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-005	Building 1101 Foundation Concrete	5-20-14	1325	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-006	Building 1101 Foundation Concrete	5-20-14	1310	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-007	Building 1101 Foundation Concrete	5-20-14	1339	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-008	Building 1101 Foundation Concrete	5-20-14	1322	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-009	Building 1101 Foundation Concrete	5-20-14	1352	G	CP	1	16 oz Plastic	X	6

Special Instructions: 7 days ingrown draft and follow with 21 days final

☐ 24-hr X 48-hr

Standard TAT ☐ ☐ 3-day ☐ 7-day

Level Of QC Required: I II III Project Specific:

Relinquished By:	Date: 5-20-14 Time: 1400	Received By:	Date: 5/21/14 Time: 8:00 AM
Relinquished By:	Date: 5/21/14 Time: 9:50	Received By: Gil Clark	Date: 5-22-14 Time: ~~0940~~ 0840 5-22-14

Method Codes
C = Composite G = Grab

Matrix Codes
DW = Drinking Water SO = Soil
GW = Ground Water SL = Sludge
WW = Waste Water CP = Chip Samples
A = Air

ABS = Asbestos PO = Pipe Opening

160-6790 Chain of Custody

Page 5 of 21

6/20/2014

CBI

Shaw Environmental and Infrastructure Inc. (a CB&I company)
Federal Services Division

4005 Port Chicago Hwy
Concord, CA 94520

CHAIN OF CUSTODY

Ref. Document # TI_Biglo1101_002
Page 2 of 2

Project Number: 140422
Project Name / Location: Bigelow Ct Building 1101 Foundation
Purchase Order #: 1106746

Project Manager: Ulrika Messer (Name & phone #)

Shipment Date: 5/21/14
Waybill Number: UPS 1E6615452595214564
Lab Destination: Earth Toxics Inc To Test America
Lab Contact Name / ph. #: Mike Dryden

Send Report To: Patricia Flynn
Phone/Fax Number: 925-288-2037
Address: 4005 Port Chicago Hwy
City: Concord, CA, 94520

Sampler's Name(s):

Analyses Requested

Sample ID Number	Sample Description	Collection Information Date	Time	Method	Matrix	# of containers	Container Type	Gamma Scan	Dose Rate µR/Hr
							Preservative (water)		
							Preservative (soil)	N/A	
TIBGC1101-CRTFDCH-010	Building 1101 Foundation Concrete	5-20-14	1337	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-011	Building 1101 Foundation Concrete	5-20-14	1405	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-012	Building 1101 Foundation Concrete	5-20-14	1353	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-013	Building 1101 Foundation Concrete	5-20-14	1413	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-014	Building 1101 Foundation Concrete	5-20-14	1410	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-015	Building 1101 Foundation Concrete	5-20-14	1425	G	CP	1	16 oz Plastic	X	6
TIBGC1101-CRTFDCH-016	Building 1101 Foundation Concrete	5-20-14	1427	G	CP	1	16 oz Plastic	X	6
N/A							→	NA	
N/A							→	NA	

N/A 5-20-14 N/A

Special Instructions: **7 days ingrown draft and follow with 21 days final**

☐ 24-hr X 48-hr

Standard TAT ☐ ☐ 3-day ☐ 7-day

Level Of QC Required: I II III Project Specific:

Relinquished By: [signature]	Date: 5-20-14 Time: 1400	Received By: [signature]	Date: 5/21/14 Time: 8:00AM
Relinquished By: [signature]	Date: 5/21/14 Time: 9:00	Received By: Jill Clarke	Date: 5.22.14 Time: 0840

Method Codes

C = Composite G = Grab

Matrix Codes

DW = Drinking Water SO = Soil
GW = Ground Water SL = Sludge
WW = Waste Water CP = Chip Samples
A = Air ABS=Asbestos, PO=Pipe Openning

6/20/2014

Login Sample Receipt Checklist

Client: Shaw Environmental &Infrastructure CB&I

Job Number: 160-6790-2

Login Number: 6790

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-2

Method	Method Description	Protocol	Laboratory
GA-01-R	Radium-226 & Other Gamma Emitters (GS)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6790-1	TIBGC1101-CRTFDCH-001	Solid	05/20/14 12:30	05/22/14 08:40
160-6790-2	TIBGC1101-CRTFDCH-002	Solid	05/20/14 12:32	05/22/14 08:40
160-6790-3	TIBGC1101-CRTFDCH-003	Solid	05/20/14 12:48	05/22/14 08:40
160-6790-4	TIBGC1101-CRTFDCH-004	Solid	05/20/14 12:45	05/22/14 08:40
160-6790-5	TIBGC1101-CRTFDCH-005	Solid	05/20/14 13:25	05/22/14 08:40
160-6790-6	TIBGC1101-CRTFDCH-006	Solid	05/20/14 13:10	05/22/14 08:40
160-6790-7	TIBGC1101-CRTFDCH-007	Solid	05/20/14 13:39	05/22/14 08:40
160-6790-8	TIBGC1101-CRTFDCH-008	Solid	05/20/14 13:22	05/22/14 08:40
160-6790-9	TIBGC1101-CRTFDCH-009	Solid	05/20/14 13:52	05/22/14 08:40
160-6790-10	TIBGC1101-CRTFDCH-010	Solid	05/20/14 13:37	05/22/14 08:40
160-6790-11	TIBGC1101-CRTFDCH-011	Solid	05/20/14 14:05	05/22/14 08:40
160-6790-12	TIBGC1101-CRTFDCH-012	Solid	05/20/14 13:53	05/22/14 08:40
160-6790-13	TIBGC1101-CRTFDCH-013	Solid	05/20/14 14:13	05/22/14 08:40
160-6790-14	TIBGC1101-CRTFDCH-014	Solid	05/20/14 14:10	05/22/14 08:40
160-6790-15	TIBGC1101-CRTFDCH-015	Solid	05/20/14 14:25	05/22/14 08:40
160-6790-16	TIBGC1101-CRTFDCH-016	Solid	05/20/14 14:27	05/22/14 08:40

Client Sample ID: TIBGC1101-CRTFDCH-001

Lab Sample ID: 160-6790-1

Date Collected: 05/20/14 12:30

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0304	U	0.0622	0.0623		0.423	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Actinium 228	**0.318**		0.131	0.135		0.201	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Bismuth-212	0.258	U	0.478	0.478		0.821	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Bismuth-214	**0.407**		0.104	0.113		0.106	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Cesium-137	-0.00876	U	0.0447	0.0448		0.0805	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Lead-210	1.11	U	1.13	1.13		1.75	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Lead-212	**0.293**		0.0999	0.107		0.112	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Lead-214	**0.523**		0.111	0.123		0.138	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Potassium-40	**4.38**		0.980	1.08		0.852	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Protactinium-231	0.211	U	0.406	0.407		1.81	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Radium-226	**0.407**		0.104	0.113	0.500	0.106	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Radium-228	**0.318**		0.131	0.135		0.201	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Thallium-208	**0.140**		0.0562	0.0581		0.0631	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Thorium-232	**0.318**		0.131	0.135		0.201	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Thorium-234	0.588	U	0.880	0.883		1.56	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Uranium-235	0.0748	U	0.165	0.166		0.359	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Uranium-238	0.588	U	0.880	0.883		1.56	pCi/g	05/27/14 11:49	06/17/14 19:20	1
Thorium 228	**0.293**		0.0999	0.107		0.112	pCi/g	05/27/14 11:49	06/17/14 19:20	1

Client Sample ID: TIBGC1101-CRTFDCH-002

Lab Sample ID: 160-6790-2

Date Collected: 05/20/14 12:32

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0200	U	0.0494	0.0495		0.443	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Actinium 228	**0.256**		0.129	0.132		0.244	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Bismuth-212	0.325	U	0.520	0.521		0.880	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Bismuth-214	**0.467**		0.117	0.127		0.0996	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Cesium-137	-0.000342	U	0.0350	0.0350		0.0680	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Lead-210	0.364	U	0.953	0.954		1.65	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Lead-212	**0.298**		0.0973	0.105		0.109	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Lead-214	**0.561**		0.109	0.124		0.0390	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Potassium-40	**5.77**		1.19	1.33		0.755	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Protactinium-231	0.0547	U	0.124	0.124		1.69	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Radium-226	**0.467**		0.117	0.127	0.500	0.0996	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Radium-228	**0.256**		0.129	0.132		0.244	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Thallium-208	**0.182**		0.0614	0.0642		0.0576	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Thorium-232	**0.256**		0.129	0.132		0.244	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Thorium-234	0.198	U	0.510	0.510		1.55	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Uranium-235	0.121	U	0.114	0.115		0.316	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Uranium-238	0.198	U	0.510	0.510		1.55	pCi/g	05/27/14 11:49	06/17/14 19:21	1
Thorium 228	**0.298**		0.0973	0.105		0.109	pCi/g	05/27/14 11:49	06/17/14 19:21	1

Client Sample ID: TIBGC1101-CRTFDCH-003

Lab Sample ID: 160-6790-3

Date Collected: 05/20/14 12:48

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0171	U	0.0453	0.0453		0.641	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Actinium 228	0.127	U	0.142	0.142		0.291	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Bismuth-212	0.0268	U	0.429	0.429		0.835	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Bismuth-214	**0.403**		0.128	0.134		0.124	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Cesium-137	-0.00497	U	0.0498	0.0498		0.0920	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Lead-210	-0.0656	U	1.24	1.24		2.12	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Lead-212	**0.231**		0.101	0.105		0.122	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Lead-214	**0.517**		0.127	0.138		0.131	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Potassium-40	**4.07**		1.20	1.27		1.25	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Protactinium-231	0.0513	U	0.139	0.140		1.85	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Radium-226	**0.403**		0.128	0.134	0.500	0.124	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Radium-228	0.127	U	0.142	0.142		0.291	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Thallium-208	**0.184**		0.0530	0.0563		0.0282	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Thorium-232	0.127	U	0.142	0.142		0.291	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Thorium-234	0.359	U	0.921	0.921		1.66	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Uranium-235	0.162	U	0.227	0.228		0.345	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Uranium-238	0.359	U	0.921	0.921		1.66	pCi/g	05/27/14 11:49	06/17/14 19:22	1
Thorium 228	**0.231**		0.101	0.105		0.122	pCi/g	05/27/14 11:49	06/17/14 19:22	1

Client Sample ID: TIBGC1101-CRTFDCH-004

Lab Sample ID: 160-6790-4

Date Collected: 05/20/14 12:45

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.248	U	0.306	0.307		0.503	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Actinium 228	0.186	U	0.107	0.108		0.250	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Bismuth-212	0.233	U	0.361	0.361		0.610	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Bismuth-214	**0.392**		0.103	0.111		0.0913	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Cesium-137	-0.00417	U	0.0370	0.0370		0.0684	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Lead-210	0.853	U	1.20	1.20		1.99	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Lead-212	**0.282**		0.0804	0.0883		0.106	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Lead-214	**0.488**		0.115	0.126		0.0877	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Potassium-40	0.000	U	1.47	1.47		2.55	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Protactinium-231	0.199	U	0.223	0.224		1.73	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Radium-226	**0.392**		0.103	0.111	0.500	0.0913	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Radium-228	0.186	U	0.107	0.108		0.250	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Thallium-208	**0.124**		0.0413	0.0433		0.0286	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Thorium-232	0.186	U	0.107	0.108		0.250	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Thorium-234	0.688	U	0.961	0.964		1.46	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Uranium-235	0.0406	U	0.0768	0.0769		0.330	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Uranium-238	0.688	U	0.961	0.964		1.46	pCi/g	05/27/14 11:49	06/17/14 19:28	1
Thorium 228	**0.282**		0.0804	0.0883		0.106	pCi/g	05/27/14 11:49	06/17/14 19:28	1

Client Sample ID: TIBGC1101-CRTFDCH-005

Lab Sample ID: 160-6790-5

Date Collected: 05/20/14 13:25

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.118	U	0.257	0.257		0.433	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Actinium 228	0.134	U	0.0963	0.0972		0.196	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Bismuth-212	0.329	U	0.399	0.400		0.648	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Bismuth-214	**0.326**		0.0895	0.0957		0.0883	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Cesium-137	0.000	U	0.0170	0.0170		0.0818	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Lead-210	-0.0536	U	0.859	0.859		1.40	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Lead-212	**0.238**		0.0691	0.0756		0.0909	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Lead-214	**0.437**		0.0894	0.100		0.0756	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Potassium-40	**4.92**		1.02	1.13		0.574	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Protactinium-231	0.0527	U	0.0737	0.0739		1.32	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Radium-226	**0.326**		0.0895	0.0957	0.500	0.0883	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Radium-228	0.134	U	0.0963	0.0972		0.196	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Thallium-208	**0.117**		0.0361	0.0381		0.0199	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Thorium-232	0.134	U	0.0963	0.0972		0.196	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Thorium-234	0.514	U	0.408	0.411		1.07	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Uranium-235	0.0597	U	0.143	0.143		0.243	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Uranium-238	0.514	U	0.408	0.411		1.07	pCi/g	05/27/14 11:49	06/17/14 19:24	1
Thorium 228	**0.238**		0.0691	0.0756		0.0909	pCi/g	05/27/14 11:49	06/17/14 19:24	1

Client Sample ID: TIBGC1101-CRTFDCH-006

Lab Sample ID: 160-6790-6

Date Collected: 05/20/14 13:10

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.200	U	0.224	0.225		0.459	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Actinium 228	0.256	U	0.148	0.150		0.281	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Bismuth-212	0.323	U	0.601	0.602		1.03	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Bismuth-214	**0.599**		0.150	0.163		0.0949	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Cesium-137	-0.0122	U	0.0940	0.0940		0.0987	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Lead-210	0.560	U	1.03	1.03		1.73	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Lead-212	**0.262**		0.0935	0.0995		0.130	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Lead-214	**0.604**		0.130	0.144		0.122	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Potassium-40	**4.55**		1.14	1.23		0.849	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Protactinium-231	0.00522	U	0.0160	0.0160		2.08	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Radium-226	**0.599**		0.150	0.163	0.500	0.0949	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Radium-228	0.256	U	0.148	0.150		0.281	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Thallium-208	0.0589	U	0.0555	0.0558		0.0874	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Thorium-232	0.256	U	0.148	0.150		0.281	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Thorium-234	0.429	U	0.339	0.342		1.80	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Uranium-235	0.125	U	0.211	0.211		0.333	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Uranium-238	0.429	U	0.339	0.342		1.80	pCi/g	05/27/14 11:49	06/17/14 19:25	1
Thorium 228	**0.262**		0.0935	0.0995		0.130	pCi/g	05/27/14 11:49	06/17/14 19:25	1

Client Sample ID: TIBGC1101-CRTFDCH-007

Lab Sample ID: 160-6790-7

Date Collected: 05/20/14 13:39

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.168	U	0.316	0.317		0.531	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Actinium 228	0.207	U	0.139	0.141		0.227	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Bismuth-212	-0.0100	U	0.587	0.587		1.09	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Bismuth-214	**0.516**		0.126	0.137		0.0714	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Cesium-137	-0.0130	U	0.0869	0.0869		0.0838	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Lead-210	**1.39**		1.20	1.21		1.35	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Lead-212	**0.310**		0.0768	0.0866		0.0850	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Lead-214	**0.522**		0.125	0.136		0.0908	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Potassium-40	**4.95**		1.13	1.24		0.816	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Protactinium-231	0.357	U	0.457	0.459		1.69	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Radium-226	**0.516**		0.126	0.137	0.500	0.0714	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Radium-228	0.207	U	0.139	0.141		0.227	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Thallium-208	**0.0873**		0.0349	0.0361		0.0252	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Thorium-232	0.207	U	0.139	0.141		0.227	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Thorium-234	0.404	U	0.389	0.391		1.70	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Uranium-235	0.143	U	0.166	0.167		0.348	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Uranium-238	0.404	U	0.389	0.391		1.70	pCi/g	05/27/14 11:49	06/17/14 20:13	1
Thorium 228	**0.310**		0.0768	0.0866		0.0850	pCi/g	05/27/14 11:49	06/17/14 20:13	1

Client Sample ID: TIBGC1101-CRTFDCH-008

Lab Sample ID: 160-6790-8

Date Collected: 05/20/14 13:22

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.192	U	0.251	0.252		0.414	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Actinium 228	**0.217**		0.111	0.113		0.148	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Bismuth-212	-0.142	U	0.416	0.416		0.730	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Bismuth-214	**0.429**		0.0975	0.107		0.0841	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Cesium-137	0.000	U	0.00476	0.00476		0.0484	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Lead-210	0.512	U	0.626	0.629		1.03	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Lead-212	**0.241**		0.0620	0.0695		0.0752	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Lead-214	**0.450**		0.0932	0.104		0.0800	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Potassium-40	**4.02**		0.803	0.903		0.665	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Protactinium-231	0.0640	U	0.136	0.136		1.21	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Radium-226	**0.429**		0.0975	0.107	0.500	0.0841	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Radium-228	**0.217**		0.111	0.113		0.148	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Thallium-208	**0.133**		0.0341	0.0368		0.0161	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Thorium-232	**0.217**		0.111	0.113		0.148	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Thorium-234	0.628	U	0.648	0.651		1.05	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Uranium-235	-0.0196	U	0.0869	0.0869		0.298	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Uranium-238	0.628	U	0.648	0.651		1.05	pCi/g	05/27/14 11:49	06/17/14 20:09	1
Thorium 228	**0.241**		0.0620	0.0695		0.0752	pCi/g	05/27/14 11:49	06/17/14 20:09	1

Client Sample ID: TIBGC1101-CRTFDCH-009

Lab Sample ID: 160-6790-9

Date Collected: 05/20/14 13:52

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.291	U	0.431	0.433		0.715	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Actinium 228	**0.618**		0.173	0.184		0.0892	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Bismuth-212	0.296	U	0.474	0.475		0.802	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Bismuth-214	**0.472**		0.142	0.150		0.146	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Cesium-137	0.0138	U	0.0371	0.0372		0.0659	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Lead-210	1.29	U	1.23	1.23		1.88	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Lead-212	**0.461**		0.112	0.127		0.112	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Lead-214	**0.549**		0.119	0.132		0.109	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Potassium-40	**3.42**		0.919	0.983		0.911	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Protactinium-231	0.0128	U	0.0525	0.0525		1.50	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Radium-226	**0.472**		0.142	0.150	0.500	0.146	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Radium-228	**0.618**		0.173	0.184		0.0892	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thallium-208	0.0743	U	0.0523	0.0529		0.0832	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thorium-232	**0.618**		0.173	0.184		0.0892	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thorium-234	0.0417	U	0.312	0.312		1.85	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Uranium-235	-0.0329	U	0.0888	0.0889		0.405	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Uranium-238	0.0417	U	0.312	0.312		1.85	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thorium 228	**0.461**		0.112	0.127		0.112	pCi/g	05/27/14 11:49	06/17/14 20:10	1

Client Sample ID: TIBGC1101-CRTFDCH-010

Lab Sample ID: 160-6790-10

Date Collected: 05/20/14 13:37

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0871	U	0.121	0.122		0.276	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Actinium 228	**0.227**		0.105	0.107		0.153	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Bismuth-212	0.414	U	0.429	0.431		0.679	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Bismuth-214	**0.490**		0.145	0.153		0.137	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Cesium-137	0.000	U	0.0206	0.0206		0.0700	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Lead-210	0.183	U	0.945	0.945		1.58	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Lead-212	**0.315**		0.0807	0.0904		0.0890	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Lead-214	**0.520**		0.111	0.124		0.119	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Potassium-40	**4.96**		0.970	1.10		0.734	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Protactinium-231	0.218	U	0.203	0.205		1.54	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Radium-226	**0.490**		0.145	0.153	0.500	0.137	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Radium-228	**0.227**		0.105	0.107		0.153	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thallium-208	**0.121**		0.0445	0.0462		0.0496	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thorium-232	**0.227**		0.105	0.107		0.153	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thorium-234	0.194	U	0.327	0.327		1.62	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Uranium-235	-0.109	U	0.201	0.201		0.339	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Uranium-238	0.194	U	0.327	0.327		1.62	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thorium 228	**0.315**		0.0807	0.0904		0.0890	pCi/g	05/27/14 11:49	06/17/14 20:11	1

Client Sample ID: TIBGC1101-CRTFDCH-011

Lab Sample ID: 160-6790-11

Date Collected: 05/20/14 14:05

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.157	U	0.171	0.172		0.276	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Actinium 228	**0.403**		0.126	0.132		0.210	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Bismuth-212	0.200	U	0.417	0.418		0.726	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Bismuth-214	**0.459**		0.110	0.120		0.109	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Cesium-137	0.00969	U	0.0341	0.0341		0.0613	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Lead-210	**1.78**		1.09	1.11		1.58	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Lead-212	**0.285**		0.0794	0.0875		0.106	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Lead-214	**0.478**		0.0976	0.109		0.129	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Potassium-40	**4.66**		1.01	1.12		0.954	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Protactinium-231	0.100	U	0.603	0.603		1.50	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Radium-226	**0.459**		0.110	0.120	0.500	0.109	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Radium-228	**0.403**		0.126	0.132		0.210	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Thallium-208	**0.0921**		0.0506	0.0515		0.0766	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Thorium-232	**0.403**		0.126	0.132		0.210	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Thorium-234	0.467	U	0.470	0.472		1.51	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Uranium-235	0.0651	U	0.111	0.111		0.363	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Uranium-238	0.467	U	0.470	0.472		1.51	pCi/g	05/27/14 11:49	06/17/14 20:52	1
Thorium 228	**0.285**		0.0794	0.0875		0.106	pCi/g	05/27/14 11:49	06/17/14 20:52	1

Client Sample ID: TIBGC1101-CRTFDCH-012

Lab Sample ID: 160-6790-12

Date Collected: 05/20/14 13:53

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.135	U	0.287	0.287		0.486	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Actinium 228	**0.278**		0.127	0.130		0.193	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Bismuth-212	0.378	U	0.489	0.491		0.804	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Bismuth-214	**0.546**		0.121	0.133		0.0491	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Cesium-137	0.000529	U	0.0476	0.0476		0.0970	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Lead-210	-0.0670	U	1.34	1.34		2.32	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Lead-212	**0.286**		0.0768	0.0852		0.0894	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Lead-214	**0.571**		0.115	0.129		0.0552	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Potassium-40	**5.09**		1.13	1.24		0.631	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Protactinium-231	0.170	U	0.531	0.532		1.34	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Radium-226	**0.546**		0.121	0.133	0.500	0.0491	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Radium-228	**0.278**		0.127	0.130		0.193	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Thallium-208	**0.137**		0.0434	0.0457		0.0258	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Thorium-232	**0.278**		0.127	0.130		0.193	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Thorium-234	0.205	U	1.02	1.02		1.86	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Uranium-235	0.143	U	0.188	0.188		0.343	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Uranium-238	0.205	U	1.02	1.02		1.86	pCi/g	05/27/14 11:49	06/17/14 22:11	1
Thorium 228	**0.286**		0.0768	0.0852		0.0894	pCi/g	05/27/14 11:49	06/17/14 22:11	1

Client Sample ID: TIBGC1101-CRTFDCH-013

Lab Sample ID: 160-6790-13

Date Collected: 05/20/14 14:13

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.310	U	0.422	0.424		0.698	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Actinium 228	**0.278**		0.130	0.133		0.234	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Bismuth-212	0.352	U	0.552	0.553		0.932	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Bismuth-214	**0.301**		0.112	0.116		0.118	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Cesium-137	0.0254	U	0.0370	0.0371		0.0619	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Lead-210	-0.148	U	1.37	1.37		2.00	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Lead-212	**0.398**		0.104	0.116		0.105	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Lead-214	**0.585**		0.123	0.137		0.0953	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Potassium-40	**4.53**		1.18	1.27		1.07	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Protactinium-231	0.306	U	1.01	1.01		1.77	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Radium-226	**0.301**		0.112	0.116	0.500	0.118	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Radium-228	**0.278**		0.130	0.133		0.234	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thallium-208	**0.109**		0.0583	0.0594		0.0811	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thorium-232	**0.278**		0.130	0.133		0.234	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thorium-234	0.570	U	0.363	0.368		1.60	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Uranium-235	**0.373**		0.297	0.300		0.331	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Uranium-238	0.570	U	0.363	0.368		1.60	pCi/g	05/27/14 11:49	06/17/14 20:10	1
Thorium 228	**0.398**		0.104	0.116		0.105	pCi/g	05/27/14 11:49	06/17/14 20:10	1

Client Sample ID: TIBGC1101-CRTFDCH-014

Lab Sample ID: 160-6790-14

Date Collected: 05/20/14 14:10

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0341	U	0.0715	0.0716		0.742	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Actinium 228	**0.246**		0.121	0.124		0.171	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Bismuth-212	0.157	U	0.359	0.359		0.635	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Bismuth-214	**0.389**		0.121	0.128		0.128	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Cesium-137	0.000	U	0.0321	0.0321		0.0721	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Lead-210	0.0583	U	1.10	1.10		1.88	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Lead-212	**0.234**		0.0764	0.0822		0.0904	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Lead-214	**0.497**		0.102	0.114		0.0692	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Potassium-40	**5.29**		1.02	1.15		0.632	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Protactinium-231	0.161	U	0.504	0.505		1.25	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Radium-226	**0.389**		0.121	0.128	0.500	0.128	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Radium-228	**0.246**		0.121	0.124		0.171	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thallium-208	**0.144**		0.0459	0.0483		0.0319	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thorium-232	**0.246**		0.121	0.124		0.171	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thorium-234	0.627	U	0.720	0.723		1.31	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Uranium-235	0.0751	U	0.195	0.195		0.308	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Uranium-238	0.627	U	0.720	0.723		1.31	pCi/g	05/27/14 11:49	06/17/14 20:11	1
Thorium 228	**0.234**		0.0764	0.0822		0.0904	pCi/g	05/27/14 11:49	06/17/14 20:11	1

Client Sample ID: TIBGC1101-CRTFDCH-015

Lab Sample ID: 160-6790-15

Date Collected: 05/20/14 14:25

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.00242	U	0.147	0.147		0.266	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Actinium 228	**0.438**		0.146	0.153		0.0896	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Bismuth-212	0.000	U	0.153	0.153		0.803	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Bismuth-214	**0.438**		0.108	0.117		0.0796	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Cesium-137	0.00601	U	0.0308	0.0308		0.0571	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Lead-210	0.443	U	0.812	0.814		1.47	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Lead-212	**0.247**		0.0645	0.0720		0.0773	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Lead-214	**0.461**		0.0862	0.0986		0.0957	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Potassium-40	**5.12**		1.02	1.15		0.374	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Protactinium-231	0.208	U	0.190	0.191		1.44	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Radium-226	**0.438**		0.108	0.117	0.500	0.0796	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Radium-228	**0.438**		0.146	0.153		0.0896	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Thallium-208	**0.0974**		0.0416	0.0428		0.0498	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Thorium-232	**0.438**		0.146	0.153		0.0896	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Thorium-234	0.296	U	0.284	0.286		1.25	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Uranium-235	0.0145	U	0.0221	0.0222		0.269	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Uranium-238	0.296	U	0.284	0.286		1.25	pCi/g	05/27/14 11:49	06/17/14 20:53	1
Thorium 228	**0.247**		0.0645	0.0720		0.0773	pCi/g	05/27/14 11:49	06/17/14 20:53	1

Client Sample ID: TIBGC1101-CRTFDCH-016

Lab Sample ID: 160-6790-16

Date Collected: 05/20/14 14:27

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.124	U	0.249	0.249		0.421	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Actinium 228	0.113	U	0.131	0.132		0.269	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Bismuth-212	0.256	U	0.439	0.439		0.751	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Bismuth-214	**0.456**		0.106	0.116		0.0454	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Cesium-137	-0.00678	U	0.0607	0.0607		0.0833	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Lead-210	0.428	U	0.893	0.894		1.52	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Lead-212	**0.306**		0.0729	0.0830		0.0782	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Lead-214	**0.518**		0.107	0.120		0.0532	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Potassium-40	**4.09**		0.974	1.06		0.583	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Protactinium-231	0.0604	U	0.835	0.835		1.51	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Radium-226	**0.456**		0.106	0.116	0.500	0.0454	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Radium-228	0.113	U	0.131	0.132		0.269	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Thallium-208	**0.143**		0.0481	0.0503		0.0342	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Thorium-232	0.113	U	0.131	0.132		0.269	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Thorium-234	0.769	U	0.488	0.494		1.49	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Uranium-235	0.0611	U	0.154	0.154		0.319	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Uranium-238	0.769	U	0.488	0.494		1.49	pCi/g	05/27/14 11:49	06/17/14 20:54	1
Thorium 228	**0.306**		0.0729	0.0830		0.0782	pCi/g	05/27/14 11:49	06/17/14 20:54	1

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-2

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-123978/1-A
Matrix: Solid
Analysis Batch: 127253

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 123978

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.01374	U	0.0949	0.0949		0.284	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Actinium 228	0.01320	U	0.0427	0.0428		0.115	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Bismuth-212	0.02248	U	0.477	0.477		0.915	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Bismuth-214	-0.02718	U	0.311	0.311		0.168	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Cesium-137	-0.002138	U	0.0274	0.0274		0.0554	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Lead-210	0.5428	U	1.21	1.22		2.25	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Lead-212	0.03453	U	0.0601	0.0603		0.112	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Lead-214	0.1444		0.0590	0.0608		0.0443	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Potassium-40	0.0000	U	0.300	0.300		0.451	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Protactinium-231	0.008764	U	0.846	0.846		1.58	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Radium-226	-0.02718	U	0.311	0.311	0.500	0.168	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Radium-228	0.01320	U	0.0427	0.0428		0.115	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Thallium-208	0.03584	U	0.0330	0.0332		0.0486	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Thorium-232	0.01320	U	0.0427	0.0428		0.115	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Thorium-234	0.07404	U	0.133	0.134		1.61	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Uranium-235	0.1814	U	0.172	0.173		0.271	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Uranium-238	0.07404	U	0.133	0.134		1.61	pCi/g	05/27/14 11:49	06/17/14 18:52	1
Thorium 228	0.03453	U	0.0601	0.0603		0.112	pCi/g	05/27/14 11:49	06/17/14 18:52	1

Lab Sample ID: LCS 160-123978/2-A
Matrix: Solid
Analysis Batch: 127255

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 123978

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			97.4	98.50		10.4		1.22	pCi/g	101	87 - 116		
Cesium-137			31.0	31.81		3.40		0.294	pCi/g	102	87 - 120		
Cobalt-60			22.2	21.99		2.27		0.102	pCi/g	99	87 - 115		

Lab Sample ID: 160-6790-1 DU
Matrix: Solid
Analysis Batch: 127251

Client Sample ID: TIBGC1101-CRTFDCH-001
Prep Type: Total/NA
Prep Batch: 123978

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit			RER	RER Limit
Actinium-227	0.0304	U		-0.1393	U	0.256		0.429	pCi/g			0.53	1
Actinium 228	0.318			0.2373	U	0.105		0.254	pCi/g			0.33	1
Bismuth-212	0.258	U		0.4884	U	0.409		0.592	pCi/g			0.26	1
Bismuth-214	0.407			0.4267		0.109		0.0589	pCi/g			0.09	1
Cesium-137	-0.00876	U		-0.01744	U	0.0416		0.0727	pCi/g			0.10	1
Lead-210	1.11	U		0.6697	U	0.960		1.43	pCi/g			0.21	1
Lead-212	0.293			0.3525		0.0890		0.0712	pCi/g			0.31	1
Lead-214	0.523			0.5069		0.108		0.0873	pCi/g			0.07	1
Potassium-40	4.38			4.653		1.11		0.399	pCi/g			0.13	1
Protactinium-231	0.211	U		0.1631	U	0.560		1.30	pCi/g			0.05	1
Radium-226	0.407			0.4267		0.109	0.500	0.0589	pCi/g			0.09	1
Radium-228	0.318			0.2373	U	0.105		0.254	pCi/g			0.33	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-6790-1 DU
Matrix: Solid
Analysis Batch: 127251

Client Sample ID: TIBGC1101-CRTFDCH-001
Prep Type: Total/NA
Prep Batch: 123978

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit			RER	RER Limit
Thallium-208	0.140			0.1381		0.0474		0.0316	pCi/g			0.02	1
Thorium-232	0.318			0.2373	U	0.105		0.254	pCi/g			0.33	1
Thorium-234	0.588	U		0.6745	U	0.429		1.07	pCi/g			0.07	1
Uranium-235	0.0748	U		0.02960	U	0.0772		0.263	pCi/g			0.19	1
Uranium-238	0.588	U		0.6745	U	0.429		1.07	pCi/g			0.07	1
Thorium 228	0.293			0.3525		0.0890		0.0712	pCi/g			0.31	1

QC Association Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-2

Rad

Prep Batch: 123978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6790-1	TIBGC1101-CRTFDCH-001	Total/NA	Solid	Fill_Geo-21	
160-6790-1 DU	TIBGC1101-CRTFDCH-001	Total/NA	Solid	Fill_Geo-21	
160-6790-2	TIBGC1101-CRTFDCH-002	Total/NA	Solid	Fill_Geo-21	
160-6790-3	TIBGC1101-CRTFDCH-003	Total/NA	Solid	Fill_Geo-21	
160-6790-4	TIBGC1101-CRTFDCH-004	Total/NA	Solid	Fill_Geo-21	
160-6790-5	TIBGC1101-CRTFDCH-005	Total/NA	Solid	Fill_Geo-21	
160-6790-6	TIBGC1101-CRTFDCH-006	Total/NA	Solid	Fill_Geo-21	
160-6790-7	TIBGC1101-CRTFDCH-007	Total/NA	Solid	Fill_Geo-21	
160-6790-8	TIBGC1101-CRTFDCH-008	Total/NA	Solid	Fill_Geo-21	
160-6790-9	TIBGC1101-CRTFDCH-009	Total/NA	Solid	Fill_Geo-21	
160-6790-10	TIBGC1101-CRTFDCH-010	Total/NA	Solid	Fill_Geo-21	
160-6790-11	TIBGC1101-CRTFDCH-011	Total/NA	Solid	Fill_Geo-21	
160-6790-12	TIBGC1101-CRTFDCH-012	Total/NA	Solid	Fill_Geo-21	
160-6790-13	TIBGC1101-CRTFDCH-013	Total/NA	Solid	Fill_Geo-21	
160-6790-14	TIBGC1101-CRTFDCH-014	Total/NA	Solid	Fill_Geo-21	
160-6790-15	TIBGC1101-CRTFDCH-015	Total/NA	Solid	Fill_Geo-21	
160-6790-16	TIBGC1101-CRTFDCH-016	Total/NA	Solid	Fill_Geo-21	
LCS 160-123978/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-123978/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-6790-6
Client Project/Site: Bigelow CT 140422

For:
Shaw Environmental &Infrastructure CB&I
4005 Port Chicago Highway
Concord, California 94520-1120

Attn: Ms. Patricia Flynn

Authorized for release by:
6/20/2014 11:20:33 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

Table of Contents

Job ID: 160-6790-6

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Shaw Environmental &Infrastructure CB&I

Project: Bigelow CT 140422

Report Number: 160-6790-6

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-6790-6 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 5/22/2014 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 21.6º C and 21.6º C.

RADIUM 226 (21 DAY INGROWTH)

Samples TIBGC1101-SBFDCH-001 (160-6790-26), TIBGC1101-SBFDCH-002 (160-6790-27), TIBGC1101-SBFDCH-003 (160-6790-28), TIBGC1101-SBFDCH-004 (160-6790-29), TIBGC1101-SBFDCH-005 (160-6790-30), TIBGC1101-SBFDCH-006 (160-6790-31), TIBGC1101-SBFDCH-007 (160-6790-32), TIBGC1101-SBFDCH-008 (160-6790-33), TIBGC1101-SBFDCH-009 (160-6790-34), TIBGC1101-SBFDCH-010 (160-6790-35), TIBGC1101-SBFDCH-011 (160-6790-36), TIBGC1101-SBFDCH-012 (160-6790-37), TIBGC1101-SBFDCH-013 (160-6790-38), TIBGC1101-SBFDCH-014 (160-6790-39), TIBGC1101-SBFDCH-015 (160-6790-40) and TIBGC1101-SBFDCH-016 (160-6790-41) were analyzed for Radium 226 (21 day ingrowth) in accordance with DOE GA-01-R. The samples were prepared on 05/27/2014 and analyzed on 06/17/2014 and 06/18/2014.

Lead-214 analyzed by gamma spectroscopy was detected above the MDC in the method blank. Variations in Compton backgrounds and statistical analyses allow for small area counts in the ROIs of this nuclide. Other Uranium decay chain products are not present in the blank to support Lead-214 identification: (160-6790-21 DU), (LCS 160-123979/2-A), (MB 160-123979/1-A), TIBGC1101-SBFDCH-001 (160-6790-26), TIBGC1101-SBFDCH-002 (160-6790-27), TIBGC1101-SBFDCH-003 (160-6790-28), TIBGC1101-SBFDCH-004 (160-6790-29), TIBGC1101-SBFDCH-005 (160-6790-30), TIBGC1101-SBFDCH-006 (160-6790-31), TIBGC1101-SBFDCH-007 (160-6790-32), TIBGC1101-SBFDCH-008 (160-6790-33), TIBGC1101-SBFDCH-009 (160-6790-34), TIBGC1101-SBFDCH-010 (160-6790-35), TIBGC1101-SBFDCH-011 (160-6790-36), TIBGC1101-SBFDCH-012 (160-6790-37), TIBGC1101-SBFDCH-013 (160-6790-38), TIBGC1101-SBFDCH-014 (160-6790-39), TIBGC1101-SBFDCH-015 (160-6790-40), TIBGC1103-SBFDCH-006 (160-6790-21).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHAIN OF CUSTODY

Ref. Document # TI_Biglo1101_003

Page 1 of 2

Shaw Environmental and Infrastructure Inc. (a CB&I company)
Federal Services Division
4005 Port Chicago Hwy
Concord, CA 94520

Project Number: 140422
Project Name / Location: Bigelow Ct Building 1101 Foundation
Purchase Order #: 1106746

Project Manager: Ulrika Messer (Name & phone #)

Shipment Date: 5/21/14
Waybill Number: 1Z6W54505948300669
Lab Destination: Earth Toxics Inc To Test America
Lab Contact Name / ph. #: Mike Dryden

Send Report To: Patricia Flynn
Phone/Fax Number: 925-288-2037
Address: 4005 Port Chicago Hwy
City: Concord, CA, 94520

Sampler's Name(s):

Sample ID Number	Sample Description	Collection Information: Date	Time	Method	Matrix	# of containers	Container Type	Preservative (water)	Preservative (soil)	Analyses Requested: Gamma Scan	Dose Rate µR/Hr
									N/A		
TIBGC1101-SBFDCH-001	Building 1101 Foundation Soil	5-21-14	0850	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-002	Building 1101 Foundation Soil	5-21-14	0840	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-003	Building 1101 Foundation Soil	5-21-14	0915	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-004	Building 1101 Foundation Soil	5-21-14	0920	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-005	Building 1101 Foundation Soil	5-21-14	0953	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-006	Building 1101 Foundation Soil	5-21-14	0947	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-007	Building 1101 Foundation Soil	5-21-14	1007	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-008	Building 1101 Foundation Soil	5-21-14	1010	G	SO	1	16 oz Plastic			X	6
TIBGC1101-SBFDCH-009	Building 1101 Foundation Soil	5-21-14	1025	G	SO	1	16 oz Plastic			X	6

Special Instructions: 7 days ingrown draft and follow with 21 days final

☐ 24-hr X 48-hr

Standard TAT ☐ ☐ 3-day ☐ 7-day

Level Of QC Required: I II III Project Specific:

Relinquished By:	Date: 5-21-14 Time: 1139	Received By:	Date: 5/21/14 Time: 11:30
Relinquished By:	Date: 5/21/14 Time: 11:40	Received By:	Date: 5-22-14 Time: 0840

Method Codes
C = Composite G = Grab

Matrix Codes
DW = Drinking Water SO = Soil
GW = Ground Water SL = Sludge
WW = Waste Water CP = Chip Samples
A = Air ABS=Asbestos, PO=Pipe Openning

CHAIN OF CUSTODY

Ref. Document # TI_Biglo1101_003

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Shaw Environmental and Infrastructure Inc. (a CB&I company)
Federal Services Division
4005 Port Chicago Hwy
Concord, CA 94520

Project Number: 140422
Project Name / Location: Bigelow Ct Building 1101 Foundation
Purchase Order #: 1106746
Shipment Date: 5/21/14
Waybill Number: 1Z66V5452594830004
Lab Destination: Earth Toxics Inc To Test America
Lab Contact Name / ph. #: Mike Dryden

Project Manager: Ulrika Messer (Name & phone #)

Send Report To: Patricia Flynn
Phone/Fax Number: 925-288-2037
Address: 4005 Port Chicago Hwy
City: Concord, CA, 94520

Sampler's Name(s):

Sample ID Number	Sample Description	Collection Information: Date	Time	Method	Matrix	# of containers	Container Type	Analyses Requested: Gamma Scan	Dose Rate µR/Hr
							Preservative (water)		
							Preservative (soil)	N/A	
TIBGC1101-SBFDCH-010	Building 1101 Foundation Soil	5-21-14	1022	G	SO	1	16 oz Plastic	X	6
TIBGC1101-SBFDCH-011	Building 1101 Foundation Soil	5-21-14	1035	G	SO	1	16 oz Plastic	X	6
TIBGC1101-SBFDCH-012	Building 1101 Foundation Soil	5-21-14	1042	G	SO	1	16 oz Plastic	X	6
TIBGC1101-SBFDCH-013	Building 1101 Foundation Soil	5-21-14	1059	G	SO	1	16 oz Plastic	X	6
TIBGC1101-SBFDCH-014	Building 1101 Foundation Soil	5-21-14	1057	G	SO	1	16 oz Plastic	X	6
TIBGC1101-SBFDCH-015	Building 1101 Foundation Soil	5-21-14	1115	G	SO	1	16 oz Plastic	X	6
TIBGC1101-SBFDCH-016	Building 1101 Foundation Soil	5-21-14	~~1113~~ 1130 5/21/14	G	SO	1	16 oz Plastic	X	6
			NO Move Sample						

Special Instructions: 7 days ingrown draft and follow with 21 days final

☐ 24-hr X 48-hr

Standard TAT ☐ ☐ 3-day ☐ 7-day

Level Of QC Required: I II III Project Specific:

Relinquished By: Date: 5-21-14 Time: 1130
Received By: Date: 5/21/14 Time: 11:30
Relinquished By: Date: 5/21/14 Time: 11:40
Received By: Jill Clark Date: 5-22-14 Time: 0846

Method Codes

C = Composite G = Grab

Matrix Codes

DW = Drinking Water SO =Soil
GW = Ground Water SL = Sludge
WW = Waste Water CP = Chip Samples
A = Air ABS=Asbestos, PO=Pipe Openning

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6/20/2014

Login Sample Receipt Checklist

Client: Shaw Environmental &Infrastructure CB&I

Job Number: 160-6790-6

Login Number: 6790

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-6

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-6

Method	Method Description	Protocol	Laboratory
GA-01-R	Radium-226 & Other Gamma Emitters (GS)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-6

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6790-26	TIBGC1101-SBFDCH-001	Solid	05/21/14 08:52	05/22/14 08:40
160-6790-27	TIBGC1101-SBFDCH-002	Solid	05/21/14 08:40	05/22/14 08:40
160-6790-28	TIBGC1101-SBFDCH-003	Solid	05/21/14 09:15	05/22/14 08:40
160-6790-29	TIBGC1101-SBFDCH-004	Solid	05/21/14 09:20	05/22/14 08:40
160-6790-30	TIBGC1101-SBFDCH-005	Solid	05/21/14 09:53	05/22/14 08:40
160-6790-31	TIBGC1101-SBFDCH-006	Solid	05/21/14 09:47	05/22/14 08:40
160-6790-32	TIBGC1101-SBFDCH-007	Solid	05/21/14 10:07	05/22/14 08:40
160-6790-33	TIBGC1101-SBFDCH-008	Solid	05/21/14 10:10	05/22/14 08:40
160-6790-34	TIBGC1101-SBFDCH-009	Solid	05/21/14 10:25	05/22/14 08:40
160-6790-35	TIBGC1101-SBFDCH-010	Solid	05/21/14 10:22	05/22/14 08:40
160-6790-36	TIBGC1101-SBFDCH-011	Solid	05/21/14 10:35	05/22/14 08:40
160-6790-37	TIBGC1101-SBFDCH-012	Solid	05/21/14 10:42	05/22/14 08:40
160-6790-38	TIBGC1101-SBFDCH-013	Solid	05/21/14 10:59	05/22/14 08:40
160-6790-39	TIBGC1101-SBFDCH-014	Solid	05/21/14 10:57	05/22/14 08:40
160-6790-40	TIBGC1101-SBFDCH-015	Solid	05/21/14 11:15	05/22/14 08:40
160-6790-41	TIBGC1101-SBFDCH-016	Solid	05/21/14 11:13	05/22/14 08:40

Client Sample ID: TIBGC1101-SBFDCH-001

Lab Sample ID: 160-6790-26

Date Collected: 05/21/14 08:52

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.193	U	0.295	0.296		0.492	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Actinium 228	**0.483**		0.155	0.162		0.0987	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Bismuth-212	0.362	U	0.575	0.576		0.970	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Bismuth-214	**0.456**		0.126	0.135		0.0923	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Cesium-137	-0.0294	U	1.17	1.17		0.117	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Lead-210	0.000	U	0.931	0.931		1.95	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Lead-212	**0.460**		0.0966	0.113		0.0865	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Lead-214	**0.480**		0.123	0.132		0.0907	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Potassium-40	**8.53**		1.38	1.63		0.570	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Protactinium-231	0.522	U	0.810	0.812		1.66	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Radium-226	**0.456**		0.126	0.135	0.500	0.0923	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Radium-228	**0.483**		0.155	0.162		0.0987	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Thallium-208	**0.200**		0.0549	0.0586		0.0342	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Thorium-232	**0.483**		0.155	0.162		0.0987	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Thorium-234	1.13	U	1.13	1.13		1.48	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Uranium-235	0.0241	U	0.0632	0.0633		0.390	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Uranium-238	1.13	U	1.13	1.13		1.48	pCi/g	05/27/14 14:50	06/17/14 22:58	1
Thorium 228	**0.460**		0.0966	0.113		0.0865	pCi/g	05/27/14 14:50	06/17/14 22:58	1

Client Sample ID: TIBGC1101-SBFDCH-002

Lab Sample ID: 160-6790-27

Date Collected: 05/21/14 08:40

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0394	U	0.124	0.124		0.511	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Actinium 228	**0.441**		0.137	0.145		0.0937	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Bismuth-212	0.000	U	0.389	0.389		0.454	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Bismuth-214	**0.340**		0.0892	0.0959		0.0865	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Cesium-137	-0.00439	U	0.0264	0.0264		0.0484	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Lead-210	0.392	U	0.793	0.795		1.34	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Lead-212	**0.406**		0.0885	0.103		0.0833	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Lead-214	**0.464**		0.0874	0.0998		0.0847	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Potassium-40	**7.53**		1.03	1.29		0.575	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Protactinium-231	0.167	U	0.375	0.375		1.60	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Radium-226	**0.340**		0.0892	0.0959	0.500	0.0865	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Radium-228	**0.441**		0.137	0.145		0.0937	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thallium-208	**0.169**		0.0509	0.0539		0.0420	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thorium-232	**0.441**		0.137	0.145		0.0937	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thorium-234	0.700	U	0.349	0.357		1.16	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Uranium-235	0.0581	U	0.120	0.120		0.358	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Uranium-238	0.700	U	0.349	0.357		1.16	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thorium 228	**0.406**		0.0885	0.103		0.0833	pCi/g	05/27/14 14:50	06/17/14 22:55	1

Client Sample ID: TIBGC1101-SBFDCH-003

Lab Sample ID: 160-6790-28

Date Collected: 05/21/14 09:15

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0272	U	0.562	0.562		0.950	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Actinium 228	**0.278**		0.121	0.125		0.224	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Bismuth-212	0.171	U	0.398	0.398		0.698	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Bismuth-214	**0.440**		0.136	0.143		0.138	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Cesium-137	0.000	U	0.0278	0.0278		0.0702	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Lead-210	-1.11	U	9.35	9.35		2.21	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Lead-212	**0.412**		0.0885	0.103		0.108	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Lead-214	**0.486**		0.134	0.143		0.132	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Potassium-40	**8.24**		1.24	1.50		0.821	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Protactinium-231	-0.200	U	0.846	0.847		1.49	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Radium-226	**0.440**		0.136	0.143	0.500	0.138	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Radium-228	**0.278**		0.121	0.125		0.224	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thallium-208	**0.102**		0.0494	0.0505		0.0680	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thorium-232	**0.278**		0.121	0.125		0.224	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thorium-234	0.751	U	0.905	0.909		1.57	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Uranium-235	0.139	U	0.186	0.186		0.301	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Uranium-238	0.751	U	0.905	0.909		1.57	pCi/g	05/27/14 14:50	06/17/14 22:55	1
Thorium 228	**0.412**		0.0885	0.103		0.108	pCi/g	05/27/14 14:50	06/17/14 22:55	1

Client Sample ID: TIBGC1101-SBFDCH-004

Lab Sample ID: 160-6790-29

Date Collected: 05/21/14 09:20

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0619	U	0.151	0.152		0.893	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Actinium 228	**0.439**		0.167	0.173		0.128	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Bismuth-212	0.201	U	0.376	0.377		0.649	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Bismuth-214	**0.417**		0.0984	0.107		0.0810	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Cesium-137	-0.00737	U	0.0354	0.0354		0.0639	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Lead-210	-0.237	U	1.17	1.17		1.75	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Lead-212	**0.457**		0.0862	0.104		0.0836	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Lead-214	**0.374**		0.0936	0.101		0.0894	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Potassium-40	**8.24**		1.16	1.44		0.302	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Protactinium-231	0.136	U	0.144	0.145		1.73	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Radium-226	**0.417**		0.0984	0.107	0.500	0.0810	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Radium-228	**0.439**		0.167	0.173		0.128	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Thallium-208	**0.156**		0.0481	0.0508		0.0372	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Thorium-232	**0.439**		0.167	0.173		0.128	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Thorium-234	0.309	U	0.450	0.451		1.51	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Uranium-235	0.178	U	0.178	0.179		0.297	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Uranium-238	0.309	U	0.450	0.451		1.51	pCi/g	05/27/14 14:50	06/17/14 22:56	1
Thorium 228	**0.457**		0.0862	0.104		0.0836	pCi/g	05/27/14 14:50	06/17/14 22:56	1

Client Sample ID: TIBGC1101-SBFDCH-005

Lab Sample ID: 160-6790-30

Date Collected: 05/21/14 09:53

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.0239	U	0.739	0.739		1.26	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Actinium 228	**0.425**		0.183	0.188		0.366	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Bismuth-212	0.297	U	0.703	0.703		1.25	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Bismuth-214	**0.361**		0.132	0.137		0.117	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Cesium-137	-0.00520	U	0.0511	0.0511		0.0980	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Lead-210	0.674	U	1.26	1.26		2.31	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Lead-212	**0.472**		0.114	0.129		0.122	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Lead-214	**0.417**		0.128	0.135		0.108	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Potassium-40	**6.86**		1.59	1.74		0.674	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Protactinium-231	0.758	U	0.758	0.763		2.12	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Radium-226	**0.361**		0.132	0.137	0.500	0.117	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Radium-228	**0.425**		0.183	0.188		0.366	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thallium-208	**0.249**		0.0753	0.0796		0.0622	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thorium-232	**0.425**		0.183	0.188		0.366	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thorium-234	1.02	U	1.05	1.05		1.79	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Uranium-235	0.0692	U	0.264	0.264		0.460	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Uranium-238	1.02	U	1.05	1.05		1.79	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thorium 228	**0.472**		0.114	0.129		0.122	pCi/g	05/27/14 14:50	06/18/14 01:43	1

Client Sample ID: TIBGC1101-SBFDCH-006

Lab Sample ID: 160-6790-31

Date Collected: 05/21/14 09:47

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.000	U	0.0646	0.0646		0.836	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Actinium 228	**0.507**		0.127	0.137		0.125	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Bismuth-212	0.195	U	0.403	0.403		0.699	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Bismuth-214	**0.517**		0.117	0.129		0.0783	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Cesium-137	-0.00798	U	0.0367	0.0367		0.0661	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Lead-210	0.665	U	0.858	0.861		1.30	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Lead-212	**0.451**		0.0806	0.0995		0.0722	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Lead-214	**0.500**		0.0907	0.104		0.0416	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Potassium-40	**8.99**		1.29	1.58		0.341	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Protactinium-231	0.155	U	0.157	0.158		1.63	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Radium-226	**0.517**		0.117	0.129	0.500	0.0783	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Radium-228	**0.507**		0.127	0.137		0.125	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thallium-208	**0.135**		0.0428	0.0450		0.0402	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thorium-232	**0.507**		0.127	0.137		0.125	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thorium-234	1.00	U	1.01	1.01		1.29	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Uranium-235	0.135	U	0.158	0.159		0.264	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Uranium-238	1.00	U	1.01	1.01		1.29	pCi/g	05/27/14 14:50	06/18/14 01:43	1
Thorium 228	**0.451**		0.0806	0.0995		0.0722	pCi/g	05/27/14 14:50	06/18/14 01:43	1

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6790-6

Client Sample ID: TIBGC1101-SBFDCH-007

Lab Sample ID: 160-6790-32

Date Collected: 05/21/14 10:07

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.0449	U	0.219	0.219		0.382	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Actinium 228	**0.348**		0.144	0.148		0.252	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Bismuth-212	0.268	U	0.441	0.442		0.751	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Bismuth-214	**0.449**		0.104	0.114		0.0435	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Cesium-137	-0.0233	U	0.423	0.423		0.0949	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Lead-210	0.489	U	0.963	0.965		1.63	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Lead-212	**0.401**		0.0954	0.109		0.0975	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Lead-214	**0.518**		0.0913	0.106		0.0697	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Potassium-40	**9.76**		1.46	1.77		0.559	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Protactinium-231	0.288	U	0.312	0.313		1.75	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Radium-226	**0.449**		0.104	0.114	0.500	0.0435	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Radium-228	**0.348**		0.144	0.148		0.252	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Thallium-208	**0.124**		0.0524	0.0540		0.0658	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Thorium-232	**0.348**		0.144	0.148		0.252	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Thorium-234	1.23	U	1.17	1.18		1.46	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Uranium-235	0.0847	U	0.199	0.199		0.359	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Uranium-238	1.23	U	1.17	1.18		1.46	pCi/g	05/27/14 14:50	06/18/14 01:44	1
Thorium 228	**0.401**		0.0954	0.109		0.0975	pCi/g	05/27/14 14:50	06/18/14 01:44	1

Client Sample ID: TIBGC1101-SBFDCH-008

Lab Sample ID: 160-6790-33

Date Collected: 05/21/14 10:10

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.00409	U	0.0248	0.0248		0.610	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Actinium 228	**0.548**		0.138	0.149		0.0655	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Bismuth-212	0.315	U	0.386	0.387		0.631	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Bismuth-214	**0.537**		0.124	0.136		0.107	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Cesium-137	-0.00834	U	0.0363	0.0363		0.0644	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-210	0.575	U	0.766	0.769		1.27	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-212	**0.349**		0.0841	0.0955		0.0884	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-214	**0.513**		0.0995	0.113		0.0851	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Potassium-40	**10.0**		1.25	1.62		0.837	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Protactinium-231	0.177	U	0.441	0.441		1.27	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Radium-226	**0.537**		0.124	0.136	0.500	0.107	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Radium-228	**0.548**		0.138	0.149		0.0655	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thallium-208	**0.0844**		0.0390	0.0399		0.0536	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium-232	**0.548**		0.138	0.149		0.0655	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium-234	0.635	U	0.794	0.797		1.31	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Uranium-235	-0.0638	U	0.217	0.217		0.368	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Uranium-238	0.635	U	0.794	0.797		1.31	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium 228	**0.349**		0.0841	0.0955		0.0884	pCi/g	05/27/14 14:50	06/18/14 01:40	1

Client Sample ID: TIBGC1101-SBFDCH-009

Lab Sample ID: 160-6790-34

Date Collected: 05/21/14 10:25

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.190	U	0.291	0.292		0.484	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Actinium 228	**0.256**		0.146	0.148		0.214	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Bismuth-212	0.262	U	0.538	0.539		0.927	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Bismuth-214	**0.396**		0.108	0.116		0.111	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Cesium-137	0.0166	U	0.0363	0.0363		0.0633	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-210	-0.415	U	1.93	1.93		2.19	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-212	**0.512**		0.108	0.126		0.102	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-214	**0.391**		0.103	0.111		0.110	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Potassium-40	**9.77**		1.34	1.68		0.512	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Protactinium-231	0.108	U	0.207	0.207		1.88	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Radium-226	**0.396**		0.108	0.116	0.500	0.111	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Radium-228	**0.256**		0.146	0.148		0.214	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thallium-208	**0.148**		0.0548	0.0569		0.0600	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium-232	**0.256**		0.146	0.148		0.214	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium-234	0.375	U	0.364	0.366		1.47	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Uranium-235	0.0715	U	0.160	0.160		0.352	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Uranium-238	0.375	U	0.364	0.366		1.47	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium 228	**0.512**		0.108	0.126		0.102	pCi/g	05/27/14 14:50	06/18/14 01:40	1

Client Sample ID: TIBGC1101-SBFDCH-010

Lab Sample ID: 160-6790-35

Date Collected: 05/21/14 10:22

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.304	U	0.322	0.324		0.526	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Actinium 228	**0.434**		0.125	0.133		0.101	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Bismuth-212	0.259	U	0.419	0.420		0.709	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Bismuth-214	**0.473**		0.0977	0.109		0.0838	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Cesium-137	0.00246	U	0.0314	0.0314		0.0581	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-210	0.413	U	0.970	0.971		1.52	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-212	**0.353**		0.0990	0.109		0.107	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-214	**0.471**		0.0962	0.108		0.105	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Potassium-40	**7.24**		1.11	1.33		0.775	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Protactinium-231	0.217	U	0.566	0.566		1.28	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Radium-226	**0.473**		0.0977	0.109	0.500	0.0838	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Radium-228	**0.434**		0.125	0.133		0.101	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thallium-208	**0.147**		0.0463	0.0488		0.0499	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium-232	**0.434**		0.125	0.133		0.101	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium-234	0.498	U	0.694	0.696		1.23	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Uranium-235	0.0675	U	0.168	0.168		0.300	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Uranium-238	0.498	U	0.694	0.696		1.23	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium 228	**0.353**		0.0990	0.109		0.107	pCi/g	05/27/14 14:50	06/18/14 01:41	1

Client Sample ID: TIBGC1101-SBFDCH-011

Lab Sample ID: 160-6790-36

Date Collected: 05/21/14 10:35

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.158	U	0.285	0.286		0.478	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Actinium 228	**0.298**		0.104	0.108		0.189	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Bismuth-212	0.203	U	0.497	0.497		0.861	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Bismuth-214	**0.406**		0.110	0.118		0.110	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Cesium-137	0.00234	U	0.0337	0.0337		0.0621	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Lead-210	0.306	U	0.965	0.965		1.80	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Lead-212	**0.351**		0.108	0.117		0.117	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Lead-214	**0.493**		0.105	0.117		0.119	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Potassium-40	**9.89**		1.26	1.61		0.533	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Protactinium-231	0.191	U	0.237	0.238		1.60	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Radium-226	**0.406**		0.110	0.118	0.500	0.110	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Radium-228	**0.298**		0.104	0.108		0.189	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Thallium-208	**0.156**		0.0561	0.0584		0.0580	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Thorium-232	**0.298**		0.104	0.108		0.189	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Thorium-234	0.468	U	0.574	0.576		1.46	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Uranium-235	0.148	U	0.187	0.188		0.319	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Uranium-238	0.468	U	0.574	0.576		1.46	pCi/g	05/27/14 14:50	06/18/14 01:42	1
Thorium 228	**0.351**		0.108	0.117		0.117	pCi/g	05/27/14 14:50	06/18/14 01:42	1

Client Sample ID: TIBGC1101-SBFDCH-012

Lab Sample ID: 160-6790-37

Date Collected: 05/21/14 10:42

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.0385	U	0.511	0.511		0.866	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Actinium 228	**0.422**		0.170	0.176		0.136	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Bismuth-212	0.177	U	0.500	0.501		0.882	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Bismuth-214	**0.575**		0.153	0.165		0.127	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Cesium-137	0.00786	U	0.0317	0.0317		0.0581	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-210	0.775	U	0.952	0.957		1.49	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-212	**0.344**		0.0793	0.0909		0.0946	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Lead-214	**0.669**		0.108	0.128		0.0890	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Potassium-40	**9.20**		1.34	1.64		0.612	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Protactinium-231	0.231	U	0.203	0.205		1.77	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Radium-226	**0.575**		0.153	0.165	0.500	0.127	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Radium-228	**0.422**		0.170	0.176		0.136	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thallium-208	**0.147**		0.0530	0.0552		0.0650	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium-232	**0.422**		0.170	0.176		0.136	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium-234	0.195	U	0.460	0.460		1.49	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Uranium-235	-0.00497	U	0.167	0.167		0.295	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Uranium-238	0.195	U	0.460	0.460		1.49	pCi/g	05/27/14 14:50	06/18/14 01:40	1
Thorium 228	**0.344**		0.0793	0.0909		0.0946	pCi/g	05/27/14 14:50	06/18/14 01:40	1

Client Sample ID: TIBGC1101-SBFDCH-013

Lab Sample ID: 160-6790-38

Date Collected: 05/21/14 10:59

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.437	U	0.429	0.433		0.699	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Actinium 228	**0.303**		0.126	0.130		0.209	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Bismuth-212	0.461	U	0.548	0.550		0.890	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Bismuth-214	**0.568**		0.127	0.140		0.0879	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Cesium-137	-0.00355	U	0.0447	0.0447		0.0824	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-210	0.497	U	0.943	0.945		1.74	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-212	**0.407**		0.0965	0.110		0.120	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-214	**0.435**		0.103	0.113		0.0902	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Potassium-40	**7.63**		1.37	1.58		0.863	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Protactinium-231	-0.0315	U	0.803	0.803		1.47	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Radium-226	**0.568**		0.127	0.140	0.500	0.0879	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Radium-228	**0.303**		0.126	0.130		0.209	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thallium-208	**0.180**		0.0485	0.0520		0.0241	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium-232	**0.303**		0.126	0.130		0.209	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium-234	0.425	U	0.467	0.469		1.48	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Uranium-235	0.211	U	0.188	0.189		0.244	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Uranium-238	0.425	U	0.467	0.469		1.48	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium 228	**0.407**		0.0965	0.110		0.120	pCi/g	05/27/14 14:50	06/18/14 01:41	1

Client Sample ID: TIBGC1101-SBFDCH-014

Lab Sample ID: 160-6790-39

Date Collected: 05/21/14 10:57

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.284	U	0.326	0.328		0.534	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Actinium 228	**0.673**		0.167	0.181		0.0780	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Bismuth-212	**1.05**		0.467	0.479		0.392	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Bismuth-214	**0.427**		0.0976	0.107		0.0818	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Cesium-137	0.00569	U	0.0325	0.0325		0.0596	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-210	0.823	U	1.03	1.03		1.72	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-212	**0.407**		0.0948	0.108		0.0976	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Lead-214	**0.451**		0.108	0.118		0.0937	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Potassium-40	**9.34**		1.28	1.60		0.464	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Protactinium-231	-0.312	U	0.844	0.845		1.46	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Radium-226	**0.427**		0.0976	0.107	0.500	0.0818	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Radium-228	**0.673**		0.167	0.181		0.0780	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thallium-208	**0.158**		0.0452	0.0480		0.0292	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium-232	**0.673**		0.167	0.181		0.0780	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium-234	0.436	U	0.421	0.423		1.47	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Uranium-235	0.00304	U	0.00641	0.00642		0.329	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Uranium-238	0.436	U	0.421	0.423		1.47	pCi/g	05/27/14 14:50	06/18/14 01:41	1
Thorium 228	**0.407**		0.0948	0.108		0.0976	pCi/g	05/27/14 14:50	06/18/14 01:41	1

Client Sample ID: TIBGC1101-SBFDCH-015

Lab Sample ID: 160-6790-40

Date Collected: 05/21/14 11:15

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0770	U	0.131	0.132		0.433	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Actinium 228	0.337	U	0.189	0.192		0.443	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Bismuth-212	-0.120	U	0.816	0.816		1.52	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Bismuth-214	**0.325**		0.178	0.181		0.201	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Cesium-137	-0.0168	U	0.0800	0.0800		0.145	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Lead-210	1.07	U	1.21	1.21		2.05	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Lead-212	**0.433**		0.136	0.147		0.146	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Lead-214	**0.404**		0.135	0.142		0.109	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Potassium-40	**6.82**		1.70	1.84		0.934	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Protactinium-231	0.348	U	0.653	0.654		1.93	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Radium-226	**0.325**		0.178	0.181	0.500	0.201	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Radium-228	0.337	U	0.189	0.192		0.443	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Thallium-208	**0.116**		0.0565	0.0577		0.0680	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Thorium-232	0.337	U	0.189	0.192		0.443	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Thorium-234	0.750	U	0.598	0.603		2.10	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Uranium-235	0.0447	U	0.126	0.126		0.459	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Uranium-238	0.750	U	0.598	0.603		2.10	pCi/g	05/27/14 14:50	06/18/14 02:24	1
Thorium 228	**0.433**		0.136	0.147		0.146	pCi/g	05/27/14 14:50	06/18/14 02:24	1

Client Sample ID: TIBGC1101-SBFDCH-016

Lab Sample ID: 160-6790-41

Date Collected: 05/21/14 11:13

Matrix: Solid

Date Received: 05/22/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.180	U	0.171	0.173		0.904	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Actinium 228	**0.278**		0.132	0.135		0.249	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Bismuth-212	0.256	U	0.397	0.398		0.670	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Bismuth-214	**0.507**		0.113	0.124		0.100	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Cesium-137	-0.00208	U	0.0509	0.0509		0.0922	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Lead-210	0.647	U	1.39	1.40		2.14	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Lead-212	**0.344**		0.0958	0.106		0.129	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Lead-214	**0.516**		0.118	0.130		0.118	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Potassium-40	**9.74**		1.39	1.71		0.730	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Protactinium-231	-0.0551	U	0.0848	0.0850		2.12	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Radium-226	**0.507**		0.113	0.124	0.500	0.100	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Radium-228	**0.278**		0.132	0.135		0.249	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Thallium-208	**0.107**		0.0541	0.0553		0.0718	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Thorium-232	**0.278**		0.132	0.135		0.249	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Thorium-234	0.0987	U	0.308	0.308		1.84	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Uranium-235	0.144	U	0.165	0.166		0.384	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Uranium-238	0.0987	U	0.308	0.308		1.84	pCi/g	05/27/14 16:16	06/17/14 18:32	1
Thorium 228	**0.344**		0.0958	0.106		0.129	pCi/g	05/27/14 16:16	06/17/14 18:32	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-123979/1-A
Matrix: Solid
Analysis Batch: 127252

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 123979

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.1197	U	0.295	0.296		0.508	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Actinium 228	0.01878	U	0.0451	0.0451		0.338	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Bismuth-212	-0.01541	U	0.553	0.553		1.08	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Bismuth-214	0.05681	U	0.113	0.114		0.211	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Cesium-137	-0.002932	U	0.0379	0.0379		0.0753	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Lead-210	-0.4422	U	1.89	1.89		2.12	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Lead-212	0.05533	U	0.0730	0.0733		0.131	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Lead-214	0.1831		0.0825	0.0847		0.0701	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Potassium-40	0.1105	U	0.454	0.454		1.07	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Protactinium-231	0.3909	U	0.940	0.941		1.66	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Radium-226	0.05681	U	0.113	0.114	0.500	0.211	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Radium-228	0.01878	U	0.0451	0.0451		0.338	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Thallium-208	0.02252	U	0.0391	0.0392		0.0644	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Thorium-232	0.01878	U	0.0451	0.0451		0.338	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Thorium-234	-0.8272	U	33.1	33.1		2.06	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Uranium-235	0.1219	U	0.166	0.166		0.311	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Uranium-238	-0.8272	U	33.1	33.1		2.06	pCi/g	05/27/14 14:50	06/17/14 20:51	1
Thorium 228	0.05533	U	0.0730	0.0733		0.131	pCi/g	05/27/14 14:50	06/17/14 20:51	1

Lab Sample ID: LCS 160-123979/2-A
Matrix: Solid
Analysis Batch: 127258

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 123979

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			97.4	98.39		10.3		1.06	pCi/g	101	87 - 116		
Cesium-137			31.0	30.68		3.26		0.263	pCi/g	99	87 - 120		
Cobalt-60			22.2	21.68		2.22		0.0877	pCi/g	98	87 - 115		

Lab Sample ID: 160-6790-A-21-F DU
Matrix: Solid
Analysis Batch: 127255

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 123979

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit			RER	RER Limit
Actinium-227	0.0521	U		0.04377	U	0.630		1.06	pCi/g			0.01	1
Actinium 228	0.673			0.4750		0.191		0.275	pCi/g			0.59	1
Bismuth-212	0.739			0.4526	U	0.469		0.739	pCi/g			0.28	1
Bismuth-214	0.473			0.5628		0.137		0.108	pCi/g			0.33	1
Cesium-137	0.00663	U		0.01241	U	0.0416		0.0737	pCi/g			0.07	1
Lead-210	1.34	U		0.8129	U	1.35		2.00	pCi/g			0.21	1
Lead-212	0.629			0.5268		0.121		0.117	pCi/g			0.41	1
Lead-214	0.534			0.6316		0.154		0.135	pCi/g			0.34	1
Potassium-40	12.0			12.41		1.96		0.499	pCi/g			0.11	1
Protactinium-231	0.356	U		0.1016	U	0.710		1.28	pCi/g			0.25	1
Radium-226	0.473			0.5628		0.137	0.500	0.108	pCi/g			0.33	1
Radium-228	0.673			0.4750		0.191		0.275	pCi/g			0.59	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-6790-A-21-F DU
Matrix: Solid
Analysis Batch: 127255

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 123979

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	RER	RER Limit
Thallium-208	0.260		0.2057		0.0582		0.0513	pCi/g	0.43	1
Thorium-232	0.673		0.4750		0.191		0.275	pCi/g	0.59	1
Thorium-234	0.346	U	0.3844	U	0.280		1.84	pCi/g	0.05	1
Uranium-235	0.0842	U	-0.05889	U	2.36		0.444	pCi/g	0.06	1
Uranium-238	0.346	U	0.3844	U	0.280		1.84	pCi/g	0.05	1
Thorium 228	0.629		0.5268		0.121		0.117	pCi/g	0.41	1

Lab Sample ID: MB 160-123980/1-A
Matrix: Solid
Analysis Batch: 127255

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 123980

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.1461	U	0.308	0.309		0.524	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Actinium 228	0.01592	U	0.0403	0.0403		0.374	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Bismuth-212	0.0000	U	0.106	0.106		0.391	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Bismuth-214	-0.06714	U	0.885	0.885		0.192	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Cesium-137	0.01402	U	0.0419	0.0419		0.0759	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Lead-210	1.254	U	1.24	1.25		2.18	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Lead-212	0.06301	U	0.0673	0.0678		0.104	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Lead-214	0.03536	U	0.0827	0.0827		0.164	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Potassium-40	-0.2148	U	8.59	8.59		0.720	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Protactinium-231	0.1748	U	0.662	0.662		1.22	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Radium-226	-0.06714	U	0.885	0.885	0.500	0.192	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Radium-228	0.01592	U	0.0403	0.0403		0.374	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Thallium-208	0.009863	U	0.0482	0.0482		0.105	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Thorium-232	0.01592	U	0.0403	0.0403		0.374	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Thorium-234	0.7244	U	0.898	0.901		1.49	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Uranium-235	0.02001	U	0.0625	0.0626		0.343	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Uranium-238	0.7244	U	0.898	0.901		1.49	pCi/g	05/27/14 16:16	06/17/14 17:29	1
Thorium 228	0.06301	U	0.0673	0.0678		0.104	pCi/g	05/27/14 16:16	06/17/14 17:29	1

Lab Sample ID: LCS 160-123980/2-A
Matrix: Solid
Analysis Batch: 127258

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 123980

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	%Rec	%Rec. Limits
Americium-241	97.4	96.55		10.1		1.10	pCi/g	99	87 - 116
Cesium-137	31.0	30.50		3.24		0.237	pCi/g	98	87 - 120
Cobalt-60	22.2	21.31		2.18		0.130	pCi/g	96	87 - 115

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-6790-41 DU
Matrix: Solid
Analysis Batch: 127258

Client Sample ID: TIBGC1101-SBFDCH-016
Prep Type: Total/NA
Prep Batch: 123980

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	RER	RER Limit
Actinium-227	0.180	U	-0.2538	U	0.299		0.488	pCi/g	0.92	1
Actinium 228	0.278		0.5052		0.132		0.0679	pCi/g	0.85	1
Bismuth-212	0.256	U	0.3383	U	0.323		0.494	pCi/g	0.11	1
Bismuth-214	0.507		0.3917		0.110		0.0968	pCi/g	0.49	1
Cesium-137	-0.00208	U	0.006811	U	0.0298		0.0539	pCi/g	0.11	1
Lead-210	0.647	U	0.4996	U	0.738		1.23	pCi/g	0.07	1
Lead-212	0.344		0.3829		0.0899		0.0827	pCi/g	0.20	1
Lead-214	0.516		0.4367		0.105		0.109	pCi/g	0.34	1
Potassium-40	9.74		10.30		1.63		0.588	pCi/g	0.17	1
Protactinium-231	-0.0551	U	-0.001920	U	0.642		1.17	pCi/g	0.07	1
Radium-226	0.507		0.3917		0.110	0.500	0.0968	pCi/g	0.49	1
Radium-228	0.278		0.5052		0.132		0.0679	pCi/g	0.85	1
Thallium-208	0.107		0.1198		0.0456		0.0376	pCi/g	0.12	1
Thorium-232	0.278		0.5052		0.132		0.0679	pCi/g	0.85	1
Thorium-234	0.0987	U	0.4045	U	0.361		1.10	pCi/g	0.46	1
Uranium-235	0.144	U	0.1054	U	0.142		0.263	pCi/g	0.13	1
Uranium-238	0.0987	U	0.4045	U	0.361		1.10	pCi/g	0.46	1
Thorium 228	0.344		0.3829		0.0899		0.0827	pCi/g	0.20	1

Rad

Prep Batch: 123979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6790-26	TIBGC1101-SBFDCH-001	Total/NA	Solid	Fill_Geo-21	
160-6790-27	TIBGC1101-SBFDCH-002	Total/NA	Solid	Fill_Geo-21	
160-6790-28	TIBGC1101-SBFDCH-003	Total/NA	Solid	Fill_Geo-21	
160-6790-29	TIBGC1101-SBFDCH-004	Total/NA	Solid	Fill_Geo-21	
160-6790-30	TIBGC1101-SBFDCH-005	Total/NA	Solid	Fill_Geo-21	
160-6790-31	TIBGC1101-SBFDCH-006	Total/NA	Solid	Fill_Geo-21	
160-6790-32	TIBGC1101-SBFDCH-007	Total/NA	Solid	Fill_Geo-21	
160-6790-33	TIBGC1101-SBFDCH-008	Total/NA	Solid	Fill_Geo-21	
160-6790-34	TIBGC1101-SBFDCH-009	Total/NA	Solid	Fill_Geo-21	
160-6790-35	TIBGC1101-SBFDCH-010	Total/NA	Solid	Fill_Geo-21	
160-6790-36	TIBGC1101-SBFDCH-011	Total/NA	Solid	Fill_Geo-21	
160-6790-37	TIBGC1101-SBFDCH-012	Total/NA	Solid	Fill_Geo-21	
160-6790-38	TIBGC1101-SBFDCH-013	Total/NA	Solid	Fill_Geo-21	
160-6790-39	TIBGC1101-SBFDCH-014	Total/NA	Solid	Fill_Geo-21	
160-6790-40	TIBGC1101-SBFDCH-015	Total/NA	Solid	Fill_Geo-21	
160-6790-A-21-F DU	Duplicate	Total/NA	Solid	Fill_Geo-21	
LCS 160-123979/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-123979/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 123980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6790-41	TIBGC1101-SBFDCH-016	Total/NA	Solid	Fill_Geo-21	
160-6790-41 DU	TIBGC1101-SBFDCH-016	Total/NA	Solid	Fill_Geo-21	
LCS 160-123980/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-123980/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-6820-2
Client Project/Site: Bigelow CT 140422

For:
Shaw Environmental &Infrastructure CB&I
4005 Port Chicago Highway
Concord, California 94520-1120

Attn: Ms. Patricia Flynn

Authorized for release by:
6/25/2014 1:17:10 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

Table of Contents

Job ID: 160-6820-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Shaw Environmental &Infrastructure CB&I

Project: Bigelow CT 140422

Report Number: 160-6820-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-6820-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 5/23/2014 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.8º C.

RADIUM 226 (21 DAY INGROWTH)

Samples TIBGC1101-CRTSWCH-001 (160-6820-1), TIBGC1101-CRTSWCH-002 (160-6820-2), TIBGC1101-CRTSWCH-003 (160-6820-3), TIBGC1101-CRTSWCH-004 (160-6820-4), TIBGC1101-SBSWCH-005 (160-6820-5), TIBGC1101-SBSWCH-006 (160-6820-6), TIBGC1101-SBSWCH-007 (160-6820-7) and TIBGC1101-SBSWCH-008 (160-6820-8) were analyzed for Radium 226 (21 day ingrowth) in accordance with DOE GA-01-R. The samples were prepared on 05/29/2014 and analyzed on 06/19/2014.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

CHAIN OF CUSTODY

Ref. Document # TI_Biglo1101_004

Page 1 of 1

Shaw Environmental and Infrastructure Inc. (a CB&I company)
Federal Services Division
4005 Port Chicago Hwy
Concord, CA 94520

Project Number: 140422
Project Name / Location: Bigelow Ct Building 1101 SIDE WALK
Purchase Order #: 1106746

Shipment Date: 5/22/14
Waybill Number: 7766 9345 2591 8660 6284
Lab Destination: Earth Toxics Inc To Test America
Lab Contact Name / ph. #: Mike Dryden

Project Manager: Ulrika Messer (Name & phone #)

Send Report To: Patricia Flynn
Phone/Fax Number: 925-288-2037
Address: 4005 Port Chicago Hwy
City: Concord, CA, 94520

Sampler's Name(s):

Sample ID Number	Sample Description	Collection Information: Date	Time	Method	Matrix	# of containers	Preservative (water) / Preservative (soil) / Container Type	Analyses Requested: Gamma Scan							Dose Rate µR/Hr		
								N/A									
TIBGC1101-CRTSWCH-001	Building 1101 Side Walk Concrete	5-21-14	1240	G	CP	1	16 oz Plastic	X							6		
TIBGC1101-CRTSWCH-002	Building 1101 Side Walk Concrete	5-21-14	1253	G	CP	1	16 oz Plastic	X							6		
TIBGC1101-CRTSWCH-003	Building 1101 Side Walk Concrete	5-21-14	1315	G	CP	1	16 oz Plastic	X							6		
TIBGC1101-CRTSWCH-004	Building 1101 Side Walk Concrete	5-21-14	1305	G	CP	1	16 oz Plastic	X							6		
TIBGC1101-SBSWCH-005	Building 1101 Side Walk Soil	5-21-14	1245	G	SO	1	16 oz Plastic	X							6		
TIBGC1101-SBSWCH-006	Building 1101 Side Walk Soil	5-21-14	1257	G	SO	1	16 oz Plastic	X							6		
TIBGC1101-SBSWCH-007	Building 1101 Side Walk Soil	5-21-14	1320	G	SO	1	16 oz Plastic	X							6		
TIBGC1101-SBSWCH-008	Building 1101 Side Walk Soil	5-21-14	1310	G	SO	1	16 oz Plastic	X							6		
N/A																N/A	

Special Instructions: 7 days ingrown draft and follow with 21 days final

☐ 24-hr X 48-hr

Standard TAT ☐ ☐ 3-day ☐ 7-day

Level Of QC Required: I II III Project Specific:

Relinquished By:	Date: 5-21-14 Time: 1400	Received By:	Date: 5/22/14 Time: 10:30
Relinquished By:	Date: 5/22/14 Time: 1300	Received By: Jill Clark	Date: 5-23-14 Time: 0840

Method Codes
C = Composite G = Grab

Matrix Codes
DW = Drinking Water SO = Soil
GW = Ground Water SL = Sludge
WW = Waste Water CP = Chip Samples
A = Air ABS=Asbestos, PO=Pipe Openning

160-6820 Chain of Custody

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6/25/2014

Login Sample Receipt Checklist

Client: Shaw Environmental &Infrastructure CB&I

Job Number: 160-6820-2

Login Number: 6820

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6820-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6820-2

Method	Method Description	Protocol	Laboratory
GA-01-R	Radium-226 & Other Gamma Emitters (GS)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6820-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-6820-1	TIBGC1101-CRTSWCH-001	Solid	05/21/14 12:40	05/23/14 08:40
160-6820-2	TIBGC1101-CRTSWCH-002	Solid	05/21/14 12:53	05/23/14 08:40
160-6820-3	TIBGC1101-CRTSWCH-003	Solid	05/21/14 13:15	05/23/14 08:40
160-6820-4	TIBGC1101-CRTSWCH-004	Solid	05/21/14 13:05	05/23/14 08:40
160-6820-5	TIBGC1101-SBSWCH-005	Solid	05/21/14 12:45	05/23/14 08:40
160-6820-6	TIBGC1101-SBSWCH-006	Solid	05/21/14 12:57	05/23/14 08:40
160-6820-7	TIBGC1101-SBSWCH-007	Solid	05/21/14 13:20	05/23/14 08:40
160-6820-8	TIBGC1101-SBSWCH-008	Solid	05/21/14 13:10	05/23/14 08:40

Client Sample ID: TIBGC1101-CRTSWCH-001

Lab Sample ID: 160-6820-1

Date Collected: 05/21/14 12:40

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.270	U	0.404	0.405		0.671	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Actinium 228	**0.372**		0.143	0.148		0.102	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Bismuth-212	0.298	U	0.517	0.518		0.883	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Bismuth-214	**0.327**		0.117	0.122		0.140	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Cesium-137	0.0132	U	0.0400	0.0400		0.0718	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Lead-210	-0.0625	U	1.24	1.24		2.31	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Lead-212	**0.370**		0.105	0.116		0.112	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Lead-214	**0.474**		0.108	0.119		0.125	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Potassium-40	**4.65**		1.09	1.19		0.934	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Protactinium-231	-0.379	U	1.26	1.26		2.18	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Radium-226	**0.327**		0.117	0.122	0.500	0.140	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Radium-228	**0.372**		0.143	0.148		0.102	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Thallium-208	**0.155**		0.0498	0.0524		0.0547	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Thorium-232	**0.372**		0.143	0.148		0.102	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Thorium-234	0.281	U	0.493	0.494		1.76	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Uranium-235	0.0944	U	0.204	0.204		0.292	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Uranium-238	0.281	U	0.493	0.494		1.76	pCi/g	05/29/14 15:56	06/19/14 21:09	1
Thorium 228	**0.370**		0.105	0.116		0.112	pCi/g	05/29/14 15:56	06/19/14 21:09	1

Client Sample ID: TIBGC1101-CRTSWCH-002

Lab Sample ID: 160-6820-2

Date Collected: 05/21/14 12:53

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.204	U	0.304	0.306		0.507	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Actinium 228	**0.439**		0.151	0.157		0.0952	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Bismuth-212	0.449	U	0.470	0.473		0.743	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Bismuth-214	**0.362**		0.134	0.139		0.143	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Cesium-137	-0.0170	U	0.0463	0.0463		0.0813	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Lead-210	-0.301	U	1.60	1.60		1.99	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Lead-212	**0.313**		0.0965	0.105		0.110	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Lead-214	**0.248**		0.0930	0.0965		0.125	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Potassium-40	**4.53**		1.01	1.11		0.850	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Protactinium-231	0.155	U	0.775	0.776		1.40	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Radium-226	**0.362**		0.134	0.139	0.500	0.143	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Radium-228	**0.439**		0.151	0.157		0.0952	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thallium-208	**0.0897**		0.0482	0.0491		0.0631	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thorium-232	**0.439**		0.151	0.157		0.0952	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thorium-234	0.227	U	0.386	0.387		1.50	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Uranium-235	0.0111	U	0.165	0.165		0.296	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Uranium-238	0.227	U	0.386	0.387		1.50	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thorium 228	**0.313**		0.0965	0.105		0.110	pCi/g	05/29/14 15:56	06/19/14 21:10	1

Client Sample ID: TIBGC1101-CRTSWCH-003

Lab Sample ID: 160-6820-3

Date Collected: 05/21/14 13:15

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.00840	U	0.0111	0.0112		0.612	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Actinium 228	**0.266**		0.139	0.142		0.232	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Bismuth-212	0.473	U	0.568	0.570		0.926	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Bismuth-214	**0.262**		0.101	0.104		0.130	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Cesium-137	0.0146	U	0.0399	0.0400		0.0710	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Lead-210	0.755	U	1.30	1.31		2.06	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Lead-212	**0.269**		0.0981	0.104		0.119	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Lead-214	**0.381**		0.117	0.124		0.121	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Potassium-40	**3.84**		1.02	1.09		1.05	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Protactinium-231	-0.457	U	1.12	1.12		1.92	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Radium-226	**0.262**		0.101	0.104	0.500	0.130	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Radium-228	**0.266**		0.139	0.142		0.232	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thallium-208	**0.130**		0.0538	0.0554		0.0592	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thorium-232	**0.266**		0.139	0.142		0.232	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thorium-234	0.868	U	1.07	1.07		1.86	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Uranium-235	0.0804	U	0.199	0.199		0.337	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Uranium-238	0.868	U	1.07	1.07		1.86	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thorium 228	**0.269**		0.0981	0.104		0.119	pCi/g	05/29/14 15:56	06/19/14 21:11	1

Client Sample ID: TIBGC1101-CRTSWCH-004

Lab Sample ID: 160-6820-4

Date Collected: 05/21/14 13:05

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0222	U	0.601	0.601		1.03	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Actinium 228	**0.286**		0.169	0.171		0.229	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Bismuth-212	0.462	U	0.563	0.565		0.913	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Bismuth-214	**0.213**		0.147	0.149		0.195	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Cesium-137	-0.0112	U	0.0466	0.0466		0.0855	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Lead-210	0.309	U	1.14	1.14		2.17	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Lead-212	**0.391**		0.149	0.157		0.159	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Lead-214	**0.235**		0.107	0.110		0.141	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Potassium-40	**3.79**		1.19	1.25		1.22	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Protactinium-231	0.230	U	1.08	1.08		1.93	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Radium-226	**0.213**		0.147	0.149	0.500	0.195	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Radium-228	**0.286**		0.169	0.171		0.229	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thallium-208	**0.117**		0.0574	0.0586		0.0731	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thorium-232	**0.286**		0.169	0.171		0.229	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thorium-234	0.363	U	0.325	0.327		1.89	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Uranium-235	0.152	U	0.198	0.199		0.343	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Uranium-238	0.363	U	0.325	0.327		1.89	pCi/g	05/29/14 15:56	06/19/14 21:10	1
Thorium 228	**0.391**		0.149	0.157		0.159	pCi/g	05/29/14 15:56	06/19/14 21:10	1

Client Sample ID: TIBGC1101-SBSWCH-005

Lab Sample ID: 160-6820-5

Date Collected: 05/21/14 12:45

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0220	U	0.179	0.179		0.967	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Actinium 228	**0.541**		0.147	0.157		0.120	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Bismuth-212	0.132	U	0.455	0.455		0.814	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Bismuth-214	**0.266**		0.110	0.114		0.142	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Cesium-137	0.00708	U	0.0364	0.0364		0.0662	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Lead-210	0.324	U	1.38	1.38		2.13	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Lead-212	**0.451**		0.0896	0.107		0.101	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Lead-214	**0.530**		0.106	0.119		0.0906	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Potassium-40	**9.59**		1.31	1.63		0.327	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Protactinium-231	0.306	U	0.488	0.489		1.48	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Radium-226	**0.266**		0.110	0.114	0.500	0.142	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Radium-228	**0.541**		0.147	0.157		0.120	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thallium-208	**0.169**		0.0558	0.0584		0.0501	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thorium-232	**0.541**		0.147	0.157		0.120	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thorium-234	0.685	U	0.859	0.862		1.52	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Uranium-235	0.129	U	0.209	0.209		0.351	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Uranium-238	0.685	U	0.859	0.862		1.52	pCi/g	05/29/14 15:56	06/19/14 21:11	1
Thorium 228	**0.451**		0.0896	0.107		0.101	pCi/g	05/29/14 15:56	06/19/14 21:11	1

Client Sample ID: TIBGC1101-SBSWCH-006

Lab Sample ID: 160-6820-6

Date Collected: 05/21/14 12:57

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.000	U	0.0928	0.0928		0.788	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Actinium 228	0.244	U	0.149	0.151		0.297	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Bismuth-212	0.000	U	0.330	0.330		0.680	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Bismuth-214	**0.532**		0.144	0.155		0.0992	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Cesium-137	0.00184	U	0.0465	0.0465		0.0934	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Lead-210	0.924	U	0.848	0.855		1.35	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Lead-212	**0.400**		0.0962	0.109		0.0976	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Lead-214	**0.432**		0.0982	0.108		0.0890	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Potassium-40	**8.39**		1.39	1.64		0.591	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Protactinium-231	0.154	U	0.206	0.207		1.84	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Radium-226	**0.532**		0.144	0.155	0.500	0.0992	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Radium-228	0.244	U	0.149	0.151		0.297	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Thallium-208	**0.192**		0.0573	0.0606		0.0368	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Thorium-232	0.244	U	0.149	0.151		0.297	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Thorium-234	0.676	U	0.547	0.551		1.46	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Uranium-235	0.130	U	0.207	0.207		0.341	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Uranium-238	0.676	U	0.547	0.551		1.46	pCi/g	05/29/14 15:56	06/19/14 21:51	1
Thorium 228	**0.400**		0.0962	0.109		0.0976	pCi/g	05/29/14 15:56	06/19/14 21:51	1

Client Sample ID: TIBGC1101-SBSWCH-007

Lab Sample ID: 160-6820-7

Date Collected: 05/21/14 13:20

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	-0.222	U	0.258	0.260		0.424	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Actinium 228	**0.483**		0.111	0.121		0.0628	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Bismuth-212	0.130	U	0.436	0.436		0.765	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Bismuth-214	**0.480**		0.101	0.113		0.0872	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Cesium-137	0.0107	U	0.0289	0.0289		0.0509	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Lead-210	0.569	U	0.734	0.737		1.21	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Lead-212	**0.392**		0.0787	0.0936		0.0683	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Lead-214	**0.522**		0.0881	0.103		0.0847	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Potassium-40	**10.8**		1.22	1.64		0.543	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Protactinium-231	0.306	U	0.421	0.422		1.26	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Radium-226	**0.480**		0.101	0.113	0.500	0.0872	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Radium-228	**0.483**		0.111	0.121		0.0628	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Thallium-208	**0.170**		0.0421	0.0456		0.0251	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Thorium-232	**0.483**		0.111	0.121		0.0628	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Thorium-234	0.179	U	0.725	0.725		1.24	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Uranium-235	0.0908	U	0.160	0.160		0.285	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Uranium-238	0.179	U	0.725	0.725		1.24	pCi/g	05/29/14 15:56	06/19/14 21:46	1
Thorium 228	**0.392**		0.0787	0.0936		0.0683	pCi/g	05/29/14 15:56	06/19/14 21:46	1

Client Sample ID: TIBGC1101-SBSWCH-008

Lab Sample ID: 160-6820-8

Date Collected: 05/21/14 13:10

Matrix: Solid

Date Received: 05/23/14 08:40

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.0153	U	0.168	0.168		0.300	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Actinium 228	**0.372**		0.151	0.156		0.222	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Bismuth-212	**0.933**		0.525	0.534		0.525	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Bismuth-214	**0.515**		0.109	0.122		0.0932	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Cesium-137	-0.00636	U	0.0390	0.0390		0.0707	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Lead-210	-0.0709	U	1.48	1.48		2.48	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Lead-212	**0.529**		0.119	0.137		0.122	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Lead-214	**0.478**		0.109	0.120		0.136	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Potassium-40	**10.7**		1.38	1.76		0.493	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Protactinium-231	0.343	U	0.445	0.447		1.56	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Radium-226	**0.515**		0.109	0.122	0.500	0.0932	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Radium-228	**0.372**		0.151	0.156		0.222	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Thallium-208	**0.247**		0.0655	0.0703		0.0599	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Thorium-232	**0.372**		0.151	0.156		0.222	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Thorium-234	0.491	U	0.987	0.989		1.53	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Uranium-235	0.0915	U	0.181	0.181		0.357	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Uranium-238	0.491	U	0.987	0.989		1.53	pCi/g	05/29/14 15:56	06/19/14 21:47	1
Thorium 228	**0.529**		0.119	0.137		0.122	pCi/g	05/29/14 15:56	06/19/14 21:47	1

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6820-2

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-124554/1-A
Matrix: Solid
Analysis Batch: 127688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 124554

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	Prepared	Analyzed	Dil Fac
Actinium-227	0.06811	U	0.132	0.133		0.592	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Actinium 228	0.01087	U	0.0376	0.0376		0.323	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Bismuth-212	0.0000	U	0.173	0.173		1.26	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Bismuth-214	0.06384	U	0.102	0.103		0.214	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Cesium-137	-0.04213	U	1.69	1.69		0.0812	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Lead-210	-0.1419	U	0.880	0.881		1.58	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Lead-212	0.04568	U	0.0604	0.0607		0.107	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Lead-214	0.1079	U	0.0796	0.0804		0.120	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Potassium-40	-0.2156	U	8.62	8.62		0.818	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Protactinium-231	0.03794	U	0.504	0.504		1.36	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Radium-226	0.06384	U	0.102	0.103	0.500	0.214	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Radium-228	0.01087	U	0.0376	0.0376		0.323	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Thallium-208	0.001673	U	0.00462	0.00462		0.0960	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Thorium-232	0.01087	U	0.0376	0.0376		0.323	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Thorium-234	0.3584	U	0.447	0.448		1.43	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Uranium-235	0.04600	U	0.154	0.154		0.309	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Uranium-238	0.3584	U	0.447	0.448		1.43	pCi/g	05/29/14 15:56	06/19/14 21:13	1
Thorium 228	0.04568	U	0.0604	0.0607		0.107	pCi/g	05/29/14 15:56	06/19/14 21:13	1

Lab Sample ID: LCS 160-124554/2-A
Matrix: Solid
Analysis Batch: 127605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 124554

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit	%Rec	%Rec. Limits		
Americium-241			97.4	96.23		10.1		1.13	pCi/g	99	87 - 116		
Cesium-137			31.0	30.48		3.23		0.215	pCi/g	98	87 - 120		
Cobalt-60			22.2	21.45		2.20		0.0610	pCi/g	97	87 - 115		

Lab Sample ID: 160-6820-1 DU
Matrix: Solid
Analysis Batch: 127689

Client Sample ID: TIBGC1101-CRTSWCH-001
Prep Type: Total/NA
Prep Batch: 124554

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit			RER	RER Limit
Actinium-227	-0.270	U		-0.05631	U	0.434		0.766	pCi/g			0.25	1
Actinium 228	0.372			0.2703	U	0.260		0.390	pCi/g			0.25	1
Bismuth-212	0.298	U		0.0000	U	0.260		1.39	pCi/g			0.38	1
Bismuth-214	0.327			0.4439		0.166		0.152	pCi/g			0.41	1
Cesium-137	0.0132	U		-0.02116	U	0.0823		0.149	pCi/g			0.28	1
Lead-210	-0.0625	U		1.007	U	1.29		2.24	pCi/g			0.42	1
Lead-212	0.370			0.5058		0.152		0.154	pCi/g			0.51	1
Lead-214	0.474			0.5550		0.175		0.109	pCi/g			0.28	1
Potassium-40	4.65			5.554		1.72		0.871	pCi/g			0.31	1
Protactinium-231	-0.379	U		0.02200	U	1.55		2.87	pCi/g			0.14	1
Radium-226	0.327			0.4439		0.166	0.500	0.152	pCi/g			0.41	1
Radium-228	0.372			0.2703	U	0.260		0.390	pCi/g			0.25	1

Method: GA-01-R - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-6820-1 DU
Matrix: Solid
Analysis Batch: 127689

Client Sample ID: TIBGC1101-CRTSWCH-001
Prep Type: Total/NA
Prep Batch: 124554

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	MDC	Unit			RER	RER Limit
Thallium-208	0.155			0.1643		0.0756		0.0804	pCi/g			0.07	1
Thorium-232	0.372			0.2703	U	0.260		0.390	pCi/g			0.25	1
Thorium-234	0.281	U		1.507	U	0.970		1.51	pCi/g			0.84	1
Uranium-235	0.0944	U		0.06825	U	0.188		0.536	pCi/g			0.07	1
Uranium-238	0.281	U		1.507	U	0.970		1.51	pCi/g			0.84	1
Thorium 228	0.370			0.5058		0.152		0.154	pCi/g			0.51	1

QC Association Summary

Client: Shaw Environmental &Infrastructure CB&I
Project/Site: Bigelow CT 140422

TestAmerica Job ID: 160-6820-2

Rad

Prep Batch: 124554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-6820-1	TIBGC1101-CRTSWCH-001	Total/NA	Solid	Fill_Geo-21	
160-6820-1 DU	TIBGC1101-CRTSWCH-001	Total/NA	Solid	Fill_Geo-21	
160-6820-2	TIBGC1101-CRTSWCH-002	Total/NA	Solid	Fill_Geo-21	
160-6820-3	TIBGC1101-CRTSWCH-003	Total/NA	Solid	Fill_Geo-21	
160-6820-4	TIBGC1101-CRTSWCH-004	Total/NA	Solid	Fill_Geo-21	
160-6820-5	TIBGC1101-SBSWCH-005	Total/NA	Solid	Fill_Geo-21	
160-6820-6	TIBGC1101-SBSWCH-006	Total/NA	Solid	Fill_Geo-21	
160-6820-7	TIBGC1101-SBSWCH-007	Total/NA	Solid	Fill_Geo-21	
160-6820-8	TIBGC1101-SBSWCH-008	Total/NA	Solid	Fill_Geo-21	
LCS 160-124554/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-124554/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Data Summary of Building 1103 Unit A

Alpha/Beta Surveys Instrument Data and Results													
Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05142014-BGC-JSS-056	05/14/2014 - 05/15/2014	3030	265988	32.2	33.3	0.2	31.8	16	88	<MDA	<MDA
				2360	184934	20.6	31.9	1.9	255.1	8	41	<MDA - 8	<MDA

Gamma Surveys Instrument Data and Results										
Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	*TIRS-05132014-BGC-GWS-048	05/13/2014	2221	262337	N/A	N/A	**15958	**18041	10,154 - 16,994
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Soil	*TIRS-05192014-BGC-JSS-074	05/19/2014 - 05/21/2014	2221	97290	17,961	21,150	N/A	N/A	14,396 - 23,513
	Concrete				97290	**15409	**16879	N/A	N/A	13,062 - 14,773
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	* TIRS-05222014-BGC-JSS-081	05/22/2014	2221	97290	17,961	21,150	N/A	N/A	13,863 - 14,912
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05302014-BGC-JSS-097	05/30/2014	2221	97290	N/A	N/A	**15698	**18812	13,400 - 21,200
Gamma Scan Survey of Gravel/Cobble Under Concrete (Post-Concrete Removal)	Gravel/Cobble	*TIRS-06022014-BGC-JSS-104	06/02/2014	2221	97290	N/A	N/A	17,635	21,119	13,619 - 27,165
	Soil									
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06062014-BGC-JSS-120	06/06/2014 - 06/09/2014	2221	97290	N/A	N/A	17,635	21,119	12,973 - 22,370
Gamma Follow Up Statics of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06102014-BGC-JSS-127	06/10/2014 - 06/11/2014	2221	97290	17,961	21,150	N/A	N/A	17,739 - 19,916

*Survey includes Istrumentation Data and Results for entire building **Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

4) Soil sampling survey performed at the same locations of the concrete bore samples to provide additional concrete foundation characterization data.

5) Concrete foundation was then saw cut to assist in segregating and tracking as the pieces were flipped in order for the underside of the foundation to be surveyed. Gamma scan survey was performed to identify any possible locations of elevated gamma activity on the underside of the foundation sections.

6) Concrete foundation was removed and GWS were then performed on newly exposed surface of cobble stone material installed between the concrete and soil during the original construction. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

7) GWS were performed on newly exposed surface of soil after the cobble stone was removed. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being sureyed.

8) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernible from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW. CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall receive additional Navy/RASO review and use concurrence.

Data Summary of Building 1103 Unit B

Alpha/Beta Surveys Instrument Data and Results													
Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05142014-BGC-JSS-053	05/14/2014 - 05/27/2014	3030	265988	32.2	33.3	0.2	31.8	16	88	<MDA	<MDA
				2360	184934	20.6	31.9	1.9	255.1	8	41	<MDA - 20	86 - 259

Gamma Surveys Instrument Data and Results										
Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	*TIRS-05132014-BGC-GWS-048	05/13/2014	2221	262337	N/A	N/A	**15958	**18041	10,154 - 16,994
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Soil	*TIRS-05192014-BGC-JSS-074	05/19/2014 - 05/21/2014	2221	97290	17,961	21,150	N/A	N/A	14,396 - 23,513
	Concrete				97290	**15409	**16879	N/A	N/A	13,062 - 14,773
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	*TIRS-05222014-BGC-JSS-081	05/22/2014	2221	97290	17,961	21,150	N/A	N/A	13,863 - 14,912
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05302014-BGC-JSS-098	05/30/2014	2221	97290	N/A	N/A	**15698	**18812	13,200 - 20,900
Gamma Scan Survey of Gravel/Cobble Under Concrete (Post-Concrete Removal)	Gravel/Cobble	*TIRS-06022014-BGC-JSS-104	06/02/2014	2221	97290	N/A	N/A	17,635	21,119	13,619 - 27,165
	Soil									
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06062014-BGC-JSS-120	06/06/2014 - 06/09/2014	2221	97290	N/A	N/A	17,635	21,119	12,973 - 22,370
Gamma Follow Up Statics of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06102014-BGC-JSS-127	06/10/2014 - 06/11/2014	2221	97290	17,961	21,150	N/A	N/A	17,739 - 19,916

*Survey includes Istrumentation Data and Results for entire building **Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

4) Soil sampling survey performed at the same locations of the concrete bore samples to provide additional concrete foundation characterization data.

5) Concrete foundation was then saw cut to assist in segregating and tracking as the pieces were flipped in order for the underside of the foundation to be surveyed. Gamma scan survey was performed to identify any possible locations of elevated gamma activity on the underside of the foundation sections.

6) Concrete foundation was removed and GWS were then performed on newly exposed surface of cobble stone material installed between the concrete and soil during the original construction. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

7) GWS were performed on newly exposed surface of soil after the cobble stone was removed. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being sureyed.

8) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernible from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW. CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall receive additional Navy/RASO review and use concurrence.

Data Summary of Building 1103 Unit C

Alpha/Beta Surveys Instrument Data and Results													
Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05142014-BGC-JSS-054	05/14/2014 - 05/15/2014	3030	265988	32.2	33.3	0.2	31.8	16	88	<MDA	<MDA
				2360	202462	22.6	32.3	1.3	227.8	6	39	<MDA - 18	65 - 198

Gamma Surveys Instrument Data and Results										
Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	*TIRS-05132014-BGC-GWS-048	05/13/2014	2221	262337	N/A	N/A	**15958	**18041	10,154 - 16,994
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Soil	*TIRS-05192014-BGC-JSS-074	05/19/2014 - 05/21/2014	2221	97290	17,961	21,150	N/A	N/A	14,396 - 23,513
	Concrete				97290	**15409	**16879	N/A	N/A	13,062 - 14,773
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	*TIRS-05222014-BGC-JSS-081	05/22/2014	2221	97290	17,961	21,150	N/A	N/A	13,863 - 14,912
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05302014-BGC-JSS-099	05/30/2014	2221	97290	N/A	N/A	**15698	**18812	13,600 - 21,800
Gamma Scan Survey of Gravel/Cobble Under Concrete (Post-Concrete Removal)	Gravel/Cobble	*TIRS-06022014-BGC-JSS-104	06/02/2014	2221	97290	N/A	N/A	17,635	21,119	13,619 - 27,165
	Soil									
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06062014-BGC-JSS-120	06/06/2014 - 06/09/2014	2221	97290	N/A	N/A	17,635	21,119	12,973 - 22,370
Gamma Follow Up Statics of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06102014-BGC-JSS-127	06/10/2014 - 06/11/2014	2221	97290	17,961	21,150	N/A	N/A	17,739 - 19,916

*Survey includes Istrumentation Data and Results for entire building **Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

4) Soil sampling survey performed at the same locations of the concrete bore samples to provide additional concrete foundation characterization data.

5) Concrete foundation was then saw cut to assist in segregating and tracking as the pieces were flipped in order for the underside of the foundation to be surveyed. Gamma scan survey was performed to identify any possible locations of elevated gamma activity on the underside of the foundation sections.

6) Concrete foundation was removed and GWS were then performed on newly exposed surface of cobble stone material installed between the concrete and soil during the original construction. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

7) GWS were performed on newly exposed surface of soil after the cobble stone was removed. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being sureyed.

8) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernible from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW. CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall receive additional Navy/RASO review and use concurrence.

Data Summary of Building 1103 Unit D

Alpha/Beta Surveys Instrument Data and Results													
Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05132014-BGC-JSS-046	05/13/2014 - 05/27/2014	3030	227355	33.3	29.6	0.3	31.8	17	99	<MDA	<MDA
				2360	275713	13.4	19.3	2	360.9	12	81	<MDA - 26	<MDA - 203

Gamma Surveys Instrument Data and Results										
Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	*TIRS-05132014-BGC-GWS-048	05/13/2014	2221	262337	N/A	N/A	**15958	**18041	10,154 - 16,994
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Soil	*TIRS-05192014-BGC-JSS-074	05/19/2014 - 05/21/2014	2221	97290	17,961	21,150	N/A	N/A	14,396 - 23,513
	Concrete				97290	**15409	**16879	N/A	N/A	13,062 - 14,773
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	*TIRS-05222014-BGC-JSS-081	05/22/2014	2221	97290	17,961	21,150	N/A	N/A	13,863 - 14,912
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05292014-BGC-JSS-094	05/29/20214	2221	97290	N/A	N/A	**15698	**18812	13,336 - 22,487
Gamma Scan Survey of Gravel/Cobble Under Concrete (Post-Concrete Removal)	Gravel/Cobble	*TIRS-06022014-BGC-JSS-104	06/02/2014	2221	97290	N/A	N/A	17,635	21,119	13,619 - 27,165
	Soil									
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06062014-BGC-JSS-120	06/06/2014 - 06/09/2014	2221	97290	N/A	N/A	17,635	21,119	12,973 - 22,370
Gamma Follow Up Statics of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06102014-BGC-JSS-127	06/10/2014 - 06/11/2014	2221	97290	17,961	21,150	N/A	N/A	17,739 - 19,916

*Survey includes Istrumentation Data and Results for entire building **Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

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5) Concrete foundation was then saw cut to assist in segregating and tracking as the pieces were flipped in order for the underside of the foundation to be surveyed. Gamma scan survey was performed to identify any possible locations of elevated gamma activity on the underside of the foundation sections.

6) Concrete foundation was removed and GWS were then performed on newly exposed surface of cobble stone material installed between the concrete and soil during the original construction. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

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8) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernible from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW. CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall receive additional Navy/RASO review and use concurrence.

Data Summary of Building 1103 Unit E

Alpha/Beta Surveys Instrument Data and Results													
Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05132014-BGC-JSS-051	5/13/2014 - 5/27/2014	3030	265988	32.2	33.3	0.2	31.8	16	88	<MDA	<MDA
				2360	184934	20.6	31.9	1.9	255.1	8	41	<MDA - 18	48 - 142

Gamma Surveys Instrument Data and Results										
Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	*TIRS-05132014-BGC-GWS-048	05/13/2014	2221	262337	N/A	N/A	**15958	**18041	10,154 - 16,994
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Soil	*TIRS-05192014-BGC-JSS-074	05/19/2014 - 05/21/2014	2221	97290	17,961	21,150	N/A	N/A	14,396 - 23,513
	Concrete				97290	**15409	**16879	N/A	N/A	13,062 - 14,773
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	*TIRS-05222014-BGC-JSS-081	05/22/2014	2221	97290	17,961	21,150	N/A	N/A	13,863 - 14,912
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05292014-BGC-JSS-093	05/29/2014	2221	97290	N/A	N/A	**15698	**18812	11,156 - 21,225
Gamma Scan Survey of Gravel/Cobble Under Concrete (Post-Concrete Removal)	Gravel/Cobble	*TIRS-06022014-BGC-JSS-104	06/02/2014	2221	97290	N/A	N/A	17,635	21,119	13,619 - 27,165
	Soil									
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06062014-BGC-JSS-120	06/06/2014 - 06/09/2014	2221	97290	N/A	N/A	17,635	21,119	12,973 - 22,370
Gamma Follow Up Statics of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06102014-BGC-JSS-127	06/10/2014 - 06/11/2014	2221	97290	17,961	21,150	N/A	N/A	17,739 - 19,916

*Survey includes Istrumentation Data and Results for entire building **Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

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8) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernible from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW. CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall receive additional Navy/RASO review and use concurrence.

Data Summary of Building 1103 Unit F

Alpha/Beta Surveys Instrument Data and Results													
Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05132014-BGC-JSS-052	05/13/2014 - 05/27/2014	3030	227355	33.3	29.6	0.3	31.8	17	99	<MDA	<MDA
				2360	276935	14.9	20	1.6	331.9	10	75	<MDA - 20	<MDA - 246

Gamma Surveys Instrument Data and Results										
Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	*TIRS-05132014-BGC-GWS-048	05/13/2014	2221	262337	N/A	N/A	**15958	**18041	10,154 - 16,994
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Soil	*TIRS-05192014-BGC-JSS-074	05/19/2014 - 05/21/2014	2221	97290	17,961	21,150	N/A	N/A	14,396 - 23,513
	Concrete				97290	**15409	**16879	N/A	N/A	13,062 - 14,773
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	*TIRS-05222014-BGC-JSS-081	05/22/2014	2221	97290	17,961	21,150	N/A	N/A	13,863 - 14,912
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05292014-BGC-JSS-092	05/29/2014	2221	97290	N/A	N/A	**15698	**18812	12,905 - 20,617
Gamma Scan Survey of Gravel/Cobble Under Concrete (Post-Concrete Removal)	Gravel/Cobble	*TIRS-06022014-BGC-JSS-104	06/02/2014	2221	97290	N/A	N/A	17,635	21,119	13,619 - 27,165
	Soil									
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06062014-BGC-JSS-120	06/06/2014 - 06/09/2014	2221	97290	N/A	N/A	17,635	21,119	12,973 - 22,370
Gamma Follow Up Statics of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	*TIRS-06102014-BGC-JSS-127	06/10/2014 - 06/11/2014	2221	97290	17,961	21,150	N/A	N/A	17,739 - 19,916

*Survey includes Istrumentation Data and Results for entire building **Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

4) Soil sampling survey performed at the same locations of the concrete bore samples to provide additional concrete foundation characterization data.

5) Concrete foundation was then saw cut to assist in segregating and tracking as the pieces were flipped in order for the underside of the foundation to be surveyed. Gamma scan survey was performed to identify any possible locations of elevated gamma activity on the underside of the foundation sections.

6) Concrete foundation was removed and GWS were then performed on newly exposed surface of cobble stone material installed between the concrete and soil during the original construction. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

7) GWS were performed on newly exposed surface of soil after the cobble stone was removed. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being sureyed.

8) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernible from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW.
CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall receive additional Navy/RASO review and use concurrence.

Data Summary of Building 1103 Unit Sheds, Patios, and Sidewalks

Alpha/Beta Surveys Instrument Data and Results

Activity	Media	Survey #	Date	Meter	Serial	α Efficiency (%)	β Efficiency (%)	α Background (cpm)	β Background (cpm)	α MDA (dpm/100cm2)	β MDA (dpm/100cm2)	α Range (dpm/100cm2)	β Range (dpm/100cm2)
Total Contamination Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05152014-BGC-JSS-062 (Patios and Sheds)	05/15/2014 - 05/21/2014	2360	275724	14.1	19.1	1.9	424.4	11	89	<MDA	<MDA - 249
				3030	227355	33.3	29.6	0.3	31.8	17	99	<MDA	<MDA
		TIRS-05162014-BGC-JSS-066 (Sidewalks)	05/16/2014 - 05/27/2014	2360	275724	14.1	19.1	1.9	424.4	11	89	<MDA - 15	136 - 283
				3030	265988	32.2	33.3	0.2	31.8	16	88	<MDA	<MDA

Gamma Surveys Instrument Data and Results

Activity	Media	Survey #	Date	Meter	Serial	Static Background (cpm)	Static IL (cpm)	Scan Background (cpm)	Scan IL (cpm)	Range (cpm)
Gamma Walkover Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05132014-BGC-GWS-049	05/13/2014	2221	268642	N/A	N/A	**15441	**18486	10,845 - 29,418
Gamma Follow Up Static of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05152014-BGC-JSS-061	05/15/2014	2221	268642	**15278	**16496	N/A	N/A	14,063
Sampling Gamma Static Survey of Concrete Surface (Pre-Concrete Removal)	Concrete	TIRS-05212014-BGC-JSS-077 (Sidewalks)	05/21/2014 - 05/22/2014	2221	97290	**15409	**16879	N/A	N/A	14,677 - 14,813
Sampling Gamma Static Survey of Soil Under Gravel/Cobble (Pre-Concrete Removal)	Soil	TIRS-05212014-BGC-JSS-077 (Sidewalks)	05/21/2014 - 05/22/2014	2221	97290	17,961	21,150	N/A	N/A	14,909 - 17,698
Gamma Scan Survey of Underside of Concrete (Post-Concrete Removal)	Concrete	TIRS-05292014-BGC-JSS-095 (Sidewalks) *see each unit for sheds and patios	05/29/2014	2221	97290	N/A	N/A	**15698	**18812	16,278 - 23,565
Gamma Walkover Survey of Soil Under Gravel/Cobble (Post-Concrete Removal)	Soil	TIRS-06022014-BGC-GWS-105	06/2/2014	2221	97290	N/A	N/A	17,635	21,119	13,712 - 23,166

**Utilized as Conservative Investigation Level

Work Process

1) Initial gamma walkover survey (GWS) performed on concrete foundation surfaces. The purpose of this survey was to identify elevated gamma activity beneath the concrete foundation prior to intrusive work. GWS scan rate of 0.5 meters per second with the detector height maintained 10 cm from the surface being sureyed.

2) Total contamination surveys performed on horizontal concrete surfaces using Ludlum floor monitors. Survey performed on 100% of all accessible areas of the foundation with the unit and included 100% scan, a one minute static, and an associate smear collected at the center of each grid. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

3) Total contamination surveys performed on vertical concrete surfaces. Survey performed on 100% of all accessible areas of the foundation and included 100% scan, a one minute static, and an associate smear collected at the center of each grouping of grids. Detector positioning during scan surveys of 1.25 cm/sec at no more than 1/4" from the survey surface.

4) Sampling survey performed on the concrete foundation to provide characterization data. At least 2 concrete bore (surface and up to 6" depth) characterization samples were collected from each unit and were sent to an off-site lab for analysis by gamma spectroscopy.

5) Soil sampling survey performed at the same locations of the concrete bore samples to provide additional concrete foundation characterization data.

6) Concrete foundation was then saw cut to assist in segregating and tracking as the pieces were flipped in order for the underside of the foundation to be surveyed. Gamma scan survey was performed to identify any possible locations of elevated gamma activity on the underside of the foundation sections.

7) Concrete foundation was removed and GWS were then performed on newly exposed surface of cobble stone material installed between the concrete and soil during the orginal construction. GWS scan rate does not exceed 0.5 meters per second with the detector height maintained 10 cm from the surface being surveyed.

8) GWS were performed on newly exposed surface of soil after the cobble stone was removed. GWS scan rate does not exceed 0.5 meters per second with the detector height maintained 10 cm from the surface being sureyed.

9) Gamma follow up statics collected at locations identified as greater than the instrument specific scan Investigation Level (IL). All statics collected were found to be less than the instrument specific static IL.

Summary

The concrete from the Building 1103 site is segregated into stockpile storage areas within our Bigelow Court site Restricted Area. Based on the field survey and off-site analytical results, CB&I has established that the concrete from Building 1103 does not contain levels of radioactivity discernable from background. CB&I has established that this concrete meets the requirements for designation as non-LLRW. CB&I requests RASO concurrence for the designation of this material as recycle material. Prior to the use of this concrete as recycle material on Treasure Island, area specific use plans shall recieve additional Navy/RASO review and use concurrence.

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05142014 BGC JSS 056

Survey Description:

Bigelow Court 1103 Unit A - Surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit A. One square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the center of every group of grids.
Elevated alpha static counts above MDA (less than Release Limit) were identified. Concrete samples will be obtained for further analysis.

Note: During the period of surveying the foundation of Building 1103, surveys did not identify total contamination exceeding the applicable Reg. Guide 1.86 Table 1 release limits.

RWP: 2013 BGC JS 01 1

Start Date: 5/14/2014 **Time:** 1000 **End Date:** 5/15/2014 **Time:** 1250

(Printed Name) **Surveyor:** Dennis Morrison

(Signature) **Surveyor:** [signature] Date: 5-22-14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.2%	33.3%
Serial #:	265988	Bkgd (lab) CPM:	0.2	31.8
Probe / #:		MDA (dpm/100cm²):	16	88
Cal. Due:	7/16/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	20.6%	31.9%
Serial #:	184934	Bkgd (lab) CPM:	1.9	255.1
Probe / #:	PR090881	MDA (dpm/100cm²):	8	41
Cal. Due:	6/24/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	3	237
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
1	1	37	<MDA	<MDA	12	245	8	<MDA					GRID 1
2	0	32	<MDA	<MDA	4	244	<MDA	<MDA					GRID 2
3	0	51	<MDA	<MDA	12	249	8	<MDA					GRID 3
4	0	35	<MDA	<MDA	6	242	<MDA	<MDA					GRID 4
5	0	25	<MDA	<MDA	10	263	<MDA	<MDA					GRID 5
6	0	29	<MDA	<MDA	6	235	<MDA	<MDA					GRID 6
7	0	32	<MDA	<MDA	6	245	<MDA	<MDA					GRID 7
8	0	48	<MDA	<MDA	10	243	<MDA	<MDA					GRID 8
9	0	42	<MDA	<MDA	4	271	<MDA	<MDA					GRID 9
10	0	35	<MDA	<MDA	7	234	<MDA	<MDA					GRID 10
11	0	34	<MDA	<MDA	6	254	<MDA	<MDA					GRID 11
12	2	28	<MDA	<MDA	3	258	<MDA	<MDA					GRID 12
13	0	27	<MDA	<MDA	3	226	<MDA	<MDA					GRID 13
14	0	32	<MDA	<MDA	7	276	<MDA	<MDA					GRID 14
15	0	29	<MDA	<MDA	5	231	<MDA	<MDA					GRID 15
16	0	42	<MDA	<MDA	11	249	<MDA	<MDA					GRID 16
17	1	27	<MDA	<MDA	11	265	<MDA	<MDA					GRID 17
18	0	38	<MDA	<MDA	6	217	<MDA	<MDA					GRID 18
19	0	41	<MDA	<MDA	9	232	<MDA	<MDA					GRID 19
20	0	39	<MDA	<MDA	9	227	<MDA	<MDA					GRID 20

Approved By: Takeshi Ibuki (Print Name) [signature] (Signature) RE (Title) 5/23/2014 (Date)

(Printed Name)
Surveyor: Dennis Morrison

(Signature)
Surveyor:

Date: 5-22-14

Survey Number: TIRS- 05142014 BGC JSS 056

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	32	<MDA	<MDA	6	220	<MDA	<MDA					GRID 21
22	0	37	<MDA	<MDA	9	223	<MDA	<MDA					GRID 22
23	0	27	<MDA	<MDA	6	225	<MDA	<MDA					GRID 23
24	0	49	<MDA	<MDA	7	254	<MDA	<MDA					GRID 24
25	0	29	<MDA	<MDA	9	240	<MDA	<MDA					GRID 25
26	0	27	<MDA	<MDA	6	213	<MDA	<MDA					GRID 26
27	2	45	<MDA	<MDA	5	234	<MDA	<MDA					GRID 27
28	0	37	<MDA	<MDA	4	246	<MDA	<MDA					GRID 28
29	0	31	<MDA	<MDA	5	236	<MDA	<MDA					GRID 29
30	0	22	<MDA	<MDA	4	250	<MDA	<MDA					GRID 30
31	1	18	<MDA	<MDA	4	237	<MDA	<MDA					GRID 31
32	0	34	<MDA	<MDA	6	210	<MDA	<MDA					GRID 32
33	0	38	<MDA	<MDA	2	209	<MDA	<MDA					GRID 33
34	0	34	<MDA	<MDA	9	203	<MDA	<MDA					GRID 34
35	1	36	<MDA	<MDA	5	228	<MDA	<MDA					GRID 35
36	1	23	<MDA	<MDA	3	216	<MDA	<MDA					GRID 36
37	0	34	<MDA	<MDA	6	241	<MDA	<MDA					GRID 37
38	1	33	<MDA	<MDA	7	202	<MDA	<MDA					GRID 38
39	1	34	<MDA	<MDA	6	225	<MDA	<MDA					GRID 39
40	0	16	<MDA	<MDA	7	252	<MDA	<MDA					GRID 40
41	0	33	<MDA	<MDA	7	255	<MDA	<MDA					GRID 41
42	0	24	<MDA	<MDA	6	248	<MDA	<MDA					GRID 42
43	0	32	<MDA	<MDA	7	231	<MDA	<MDA					GRID 43
44	1	26	<MDA	<MDA	8	269	<MDA	<MDA					GRID 44
45	0	40	<MDA	<MDA	11	243	<MDA	<MDA					GRID 45
46	0	28	<MDA	<MDA	10	258	<MDA	<MDA					GRID 46
47	0	37	<MDA	<MDA	11	257	<MDA	<MDA					GRID 47
48	0	27	<MDA	<MDA	11	245	<MDA	<MDA					GRID 48
49	0	46	<MDA	<MDA	6	248	<MDA	<MDA					GRID 49
50	0	32	<MDA	<MDA	5	229	<MDA	<MDA					GRID 50
51	1	42	<MDA	<MDA	8	267	<MDA	<MDA					GRID 51
52	0	31	<MDA	<MDA	8	255	<MDA	<MDA					GRID 52
53	0	26	<MDA	<MDA	5	246	<MDA	<MDA					GRID 53
54	0	30	<MDA	<MDA	9	264	<MDA	<MDA					GRID 54
55	0	29	<MDA	<MDA	4	244	<MDA	<MDA					GRID 55
56	1	26	<MDA	<MDA	8	257	<MDA	<MDA					GRID 56
57	0	33	<MDA	<MDA	8	248	<MDA	<MDA					GRID 57 -
58	0	32	<MDA	<MDA	7	251	<MDA	<MDA					GRID 58 -
59	0	35	<MDA	<MDA	8	281	<MDA	<MDA					GRID 59 -
60					5	268	<MDA	<MDA					GRID 1 - Follow up Static

CB&I Federal Services

(Printed Name)
Surveyor: Dennis Morrison

(Signature)
Surveyor:

Date 5.22.14

Survey Number: TIRS- 05142014 BGC JSS 056

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					7	265	<MDA	<MDA					GRID 3 - Follow up Static

FRM-TI-01-1

(Printed Name) Surveyor: Dennis Morrison

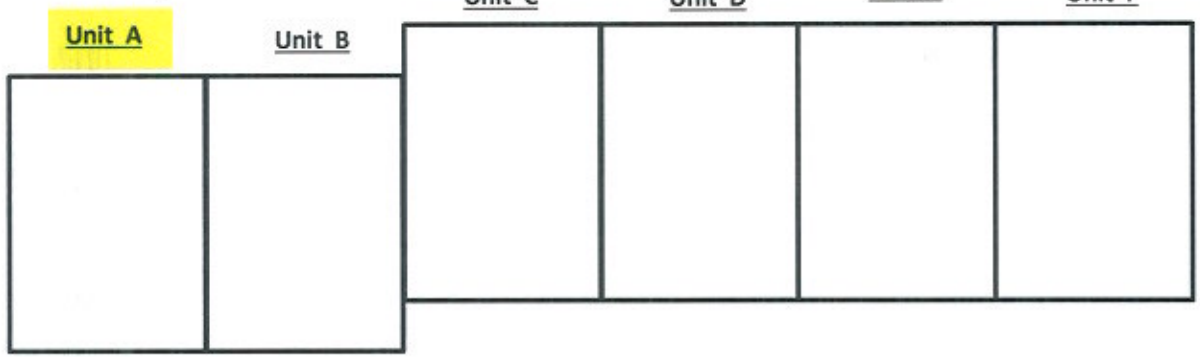
(Signature) Surveyor:

Date: 5-20-14

Survey Number: TIRS- 05142014 BGC JSS 056

N

Building 1103 Foundation



Description

Total 59 of one square meter grids were established within Unit A. 100% scan survey on all accessible surface performed. A static count performed and a smears obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/15/2014
12:31:14 PM

Header 1: Treasure Island
Header 2: 3030 S/N 265988
Header 3: alpha bkgd:0.2
Header 4: Beta bkgd:31.8
Header 5: BGC 1103-A
Header 6: RCT:D. Morrison

Calibration Due Date: 7/16/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/15/2014	10:17:04	1	37	1.0	S	
2	5/15/2014	10:20:48	0	32	1.0	S	
3	5/15/2014	10:22:52	0	51	1.0	S	
4	5/15/2014	10:24:18	0	35	1.0	S	
5	5/15/2014	10:25:35	0	25	1.0	S	
6	5/15/2014	10:26:52	0	29	1.0	S	
7	5/15/2014	10:28:53	0	32	1.0	S	
8	5/15/2014	10:30:19	0	48	1.0	S	
9	5/15/2014	10:31:42	0	42	1.0	S	
10	5/15/2014	10:32:58	0	35	1.0	S	
11	5/15/2014	10:34:31	0	34	1.0	S	
12	5/15/2014	10:37:08	2	28	1.0	S	
13	5/15/2014	10:38:55	0	27	1.0	S	
14	5/15/2014	10:40:08	0	32	1.0	S	
15	5/15/2014	10:41:22	0	29	1.0	S	
16	5/15/2014	10:43:31	0	42	1.0	S	
17	5/15/2014	10:44:48	1	27	1.0	S	
18	5/15/2014	10:46:08	0	38	1.0	S	
19	5/15/2014	10:48:16	0	41	1.0	S	
20	5/15/2014	10:49:41	0	39	1.0	S	
21	5/15/2014	10:51:32	0	32	1.0	S	
22	5/15/2014	10:52:55	0	37	1.0	S	
23	5/15/2014	10:54:24	0	27	1.0	S	
24	5/15/2014	10:55:40	0	49	1.0	S	
25	5/15/2014	10:57:08	0	29	1.0	S	
26	5/15/2014	10:58:21	0	27	1.0	S	
27	5/15/2014	10:59:52	2	45	1.0	S	
28	5/15/2014	11:01:07	0	37	1.0	S	
29	5/15/2014	11:02:23	0	31	1.0	S	
30	5/15/2014	11:03:48	0	22	1.0	S	
31	5/15/2014	11:05:15	1	18	1.0	S	
32	5/15/2014	11:06:53	0	34	1.0	S	
33	5/15/2014	11:11:23	0	38	1.0	S	
34	5/15/2014	11:13:11	0	34	1.0	S	
35	5/15/2014	11:14:47	1	36	1.0	S	
36	5/15/2014	11:16:25	1	23	1.0	S	
37	5/15/2014	11:17:46	0	34	1.0	S	
38	5/15/2014	11:22:52	1	33	1.0	S	
39	5/15/2014	11:24:08	1	34	1.0	S	
40	5/15/2014	11:25:28	0	16	1.0	S	
41	5/15/2014	11:27:01	0	33	1.0	S	

(Printed Name)
Surveyor: Dennis Morrison
(Signature)
Surveyor: Date: 5-22-14

Survey Number: TIRS- 05142014 BGC JSS 056

42	5/15/2014	11:28:52	0	24	1.0	S
43	5/15/2014	11:30:22	0	32	1.0	S
44	5/15/2014	11:31:52	1	26	1.0	S
45	5/15/2014	12:08:24	0	40	1.0	S
46	5/15/2014	12:09:58	0	28	1.0	S
47	5/15/2014	12:11:12	0	37	1.0	S
48	5/15/2014	12:12:26	0	27	1.0	S
49	5/15/2014	12:13:45	0	46	1.0	S
50	5/15/2014	12:14:59	0	32	1.0	S
51	5/15/2014	12:16:51	1	42	1.0	S
52	5/15/2014	12:18:11	0	31	1.0	S
53	5/15/2014	12:19:42	0	26	1.0	S
54	5/15/2014	12:21:08	0	30	1.0	S
55	5/15/2014	12:22:20	0	29	1.0	S
56	5/15/2014	12:24:09	1	26	1.0	S
57	5/15/2014	12:25:26	0	33	1.0	S
58	5/15/2014	12:26:40	0	32	1.0	S
59	5/15/2014	12:28:18	0	35	1.0	S

(Printed Name)
Surveyor: Dennis Morrison

(Signature)
Surveyor: Date: 5-22-14

Survey Number: TIRS- 05142014 BGC JSS 056

Header 1: Treasure Island
Header 2: 2360 S/N 184934
Header 3: Alpha BKGD: 1.9
Header 4: Beta BKGD:255.1
Header 5: Bldg 1103 A
Header 6: RCT:D. Morrison

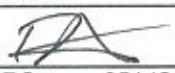
S=Scaler, R=Ratemeter

Sample #	Date	Time	Alpha	Beta	S/R	Count Time	Location
	05/15/2014	08:17:39 AM	3	237	S	1.0	BKGD
1	05/15/2014	08:19:10 AM	12	245	S	1.0	
2	05/15/2014	08:20:57 AM	4	244	S	1.0	
3	05/15/2014	08:22:13 AM	12	249	S	1.0	
4	05/15/2014	08:23:25 AM	6	242	S	1.0	
5	05/15/2014	08:24:36 AM	10	263	S	1.0	
6	05/15/2014	08:25:48 AM	6	235	S	1.0	
7	05/15/2014	08:27:11 AM	6	245	S	1.0	
8	05/15/2014	08:28:22 AM	10	243	S	1.0	
9	05/15/2014	08:29:36 AM	4	271	S	1.0	
10	05/15/2014	08:30:56 AM	7	234	S	1.0	
11	05/15/2014	08:32:09 AM	6	254	S	1.0	
12	05/15/2014	08:33:22 AM	3	258	S	1.0	
13	05/15/2014	08:34:37 AM	3	226	S	1.0	
14	05/15/2014	08:35:58 AM	7	276	S	1.0	
15	05/15/2014	08:37:18 AM	5	231	S	1.0	
16	05/15/2014	08:38:38 AM	11	249	S	1.0	
17	05/15/2014	08:39:54 AM	11	265	S	1.0	
18	05/15/2014	08:41:11 AM	6	217	S	1.0	
19	05/15/2014	08:42:32 AM	9	232	S	1.0	
20	05/15/2014	08:43:44 AM	9	227	S	1.0	
21	05/15/2014	08:44:57 AM	6	220	S	1.0	
22	05/15/2014	08:46:09 AM	9	223	S	1.0	
23	05/15/2014	08:47:23 AM	6	225	S	1.0	
24	05/15/2014	08:48:43 AM	7	254	S	1.0	
25	05/15/2014	08:50:02 AM	9	240	S	1.0	
26	05/15/2014	08:51:42 AM	6	213	S	1.0	
27	05/15/2014	08:53:06 AM	5	234	S	1.0	
28	05/15/2014	08:54:22 AM	4	246	S	1.0	
29	05/15/2014	08:55:36 AM	5	236	S	1.0	
30	05/15/2014	08:56:48 AM	4	250	S	1.0	
31	05/15/2014	08:58:10 AM	4	237	S	1.0	
32	05/15/2014	08:59:32 AM	6	210	S	1.0	
33	05/15/2014	09:00:51 AM	2	209	S	1.0	
34	05/15/2014	09:02:01 AM	9	203	S	1.0	
35	05/15/2014	09:03:16 AM	5	228	S	1.0	
36	05/15/2014	09:04:51 AM	3	216	S	1.0	
37	05/15/2014	09:06:10 AM	6	241	S	1.0	
38	05/15/2014	09:07:35 AM	7	202	S	1.0	
39	05/15/2014	09:08:49 AM	6	225	S	1.0	
40	05/15/2014	09:10:22 AM	7	252	S	1.0	
41	05/15/2014	09:11:41 AM	7	255	S	1.0	
42	05/15/2014	09:13:00 AM	6	248	S	1.0	
43	05/15/2014	09:14:12 AM	7	231	S	1.0	
44	05/15/2014	09:15:24 AM	8	269	S	1.0	

(Printed Name)
Surveyor: Dennis Morrison
(Signature)
Surveyor:  Date: 5-22-14
Survey Number: TIRS- 05142014 BGC JSS 056

45	05/15/2014	09:16:51 AM	11	243	S	1.0
46	05/15/2014	09:18:48 AM	10	258	S	1.0
47	05/15/2014	09:20:10 AM	11	257	S	1.0
48	05/15/2014	09:21:26 AM	11	245	S	1.0
49	05/15/2014	09:22:42 AM	6	248	S	1.0
50	05/15/2014	09:23:56 AM	5	229	S	1.0
51	05/15/2014	09:25:08 AM	8	267	S	1.0
52	05/15/2014	09:26:21 AM	8	255	S	1.0
53	05/15/2014	09:27:40 AM	5	246	S	1.0
54	05/15/2014	09:28:58 AM	9	264	S	1.0
55	05/15/2014	09:30:13 AM	4	244	S	1.0
56	05/15/2014	09:31:40 AM	8	257	S	1.0
57	05/15/2014	09:32:54 AM	8	248	S	1.0
58	05/15/2014	09:34:12 AM	7	251	S	1.0
59	05/15/2014	09:35:44 AM	8	281	S	1.0
60	05/15/2014	09:47:18 AM	5	268	S	1.0
61	05/15/2014	09:48:43 AM	7	265	S	1.0

(Printed Name)
Surveyor: Dennis Morrison

(Signature)
Surveyor:  Date: 5-22-14

Survey Number: TIRS- 05142014 BGC JSS 056

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05132014 BGC GWS 048

Survey Description:

Gamma walkover survey performed at Bigelow Court Building 1103 on the concrete pad foundation. Area scanned with 2221 and NaI detector at scan rate of a half meter per second with probe at four inches from surface area. The purpose of this survey is to identify possible commodities or areas of elevated activity.

Note: Investigation Level of asphalt that is indicated in survey meter section is for reference only.

RWP: 2013 BGC JS 01 1

Start Date: 5/13/2014 **Time:** 0730 **End Date:** 5/13/2014 **Time:** 1440

(Printed Name) **Surveyor:** Richard George

(Signature) **Surveyor:** Rick D. Date: 5/20/14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2):		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2):		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	262337	Serial #:	
Cal. Due:	03/27/2015	Cal. Due:	
Ref Area BKG(Scan)	15958	Bkgd (lab):	
Ref Area IL(Scan)	18041	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
See Map														Scan Range:10,154 - 16,994 cpm

Approved By: Takeshi Ibuki — *Print Name*; *Signature*; RE — *Title*; 5/21/2014 — *Date*

FRM-TI-01-1

Gamma Walkover Survey at Bigelow Court
Building 1103 Concrete Foundation

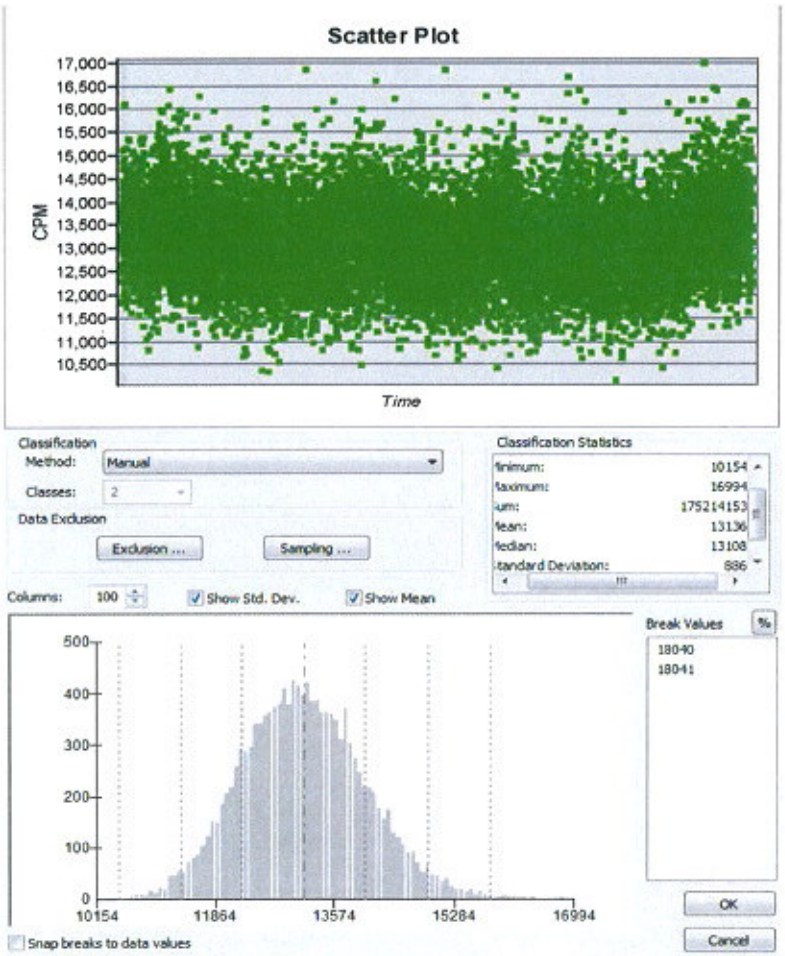
Survey Number:
TIRS-05132014-BGC-GWS-048

Data Processed In Treasure Island Office

Reviewed By: _____ **Date** 5/21/2014

Gamma Walkover Survey of Building 1103 Concrete Foundation

In the 9000s	In the 10000s	In the 11000s	In the 12000s	In the 13000s	In the 14000s	In the 15000s	In the 16000s
0	60	1185	4762	5169	1859	276	27



CB&I Federal Services

RADIOLOGICAL SURVEY FORM / SAMPLE COLLECTION LOG

Survey Number: TIRS- 05192014 BGC JSS 074

Survey Description: Concrete and Soil sampling: Gamma statics and exposure rates collected at Bldg 1103 below concrete foundation. Samples taken below Units A, B, C, D, E, F for concrete and for units A, E, and F for soil. Reference TIRS-05222014-BGC-JSS-081 for additional soil samples. Purpose of sampling is to determine radiological status of area. *1:Removable contamination survey and contact exposure rate survey performed on sample jars and cooler prior to being released from a controlled area. *2: Exposure rate survey at 10 cm performed on actual sampling locations.

Note: Reference used for Survey Instrument #3: Asphalt BKG (Static-15,409 and Area IL Static-16,879 cpm) used for Concrete. Soil Samples ID No. 005, 007 and 009 were not collected at this time.

Weather: Sunny Temp: 75 °F Wind: 0 - 5 mph

Offsite Analysis Requested: Gamma Spec : Chain of Custody No:TI_Biglo1103 _005 and _006

RWP: 2013 BGC JS 01 1

Start Date: 5/19/2014 **Time:** 0930 **End Date:** 5/21/2014 **Time:** 0930

(Printed Name) **Surveyor:** Dennis Morrison Lester Sharp

(Signature) **Surveyor:** Date: 5.27.14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.2%	33.3%
Serial #:	265988	Bkgd (lab) CPM:	0.2	31.8
Probe / #:		MDA (dpm/100cm^2) :	16	88
Cal. Due:	7/16/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)		
Model:	2221	Model:	19	
Serial #:	97290	Serial #:	72162	
Cal. Due:	4/30/2015	Cal. Due:	02/10/2015	
Ref Area BKG(Static)	17961	Bkgd (lab):	5	µR/hr
Ref Area IL(Static)	21150	Area Bkgd	6	µR/hr
Site	Location7	Sat/Unsat:	sat	

Sampling Location No.	Sampling Time	*1 Removable Contamination #1 cpm/100 cm2 α	*1 Removable Contamination #1 cpm/100 cm2 β/γ	*1 Removable Contamination #1 dpm/100 cm2 α	*1 Removable Contamination #1 dpm/100 cm2 β/γ	Gamma #3 cpm 10 cm Above Gross	Gamma #3 cpm 10 cm Above < IL?	Gamma #3 cpm 15 cm Depth Gross	Exposure Rate #4 µR/hr Contact Gross *1	Exposure Rate #4 µR/hr 10 cm Gross *2	Sample ID No.	Sample Description/Comments
1	0955	0	36	<MDA	<MDA	14088	<IL	14742	6	6	TI-BGC1103-CRTFDCH-001	Concrete Foundation
2	0950	0	27	<MDA	<MDA	13766	<IL	14726	6	6	TI-BGC1103-CRTFDCH-002	Concrete Foundation
3	1053	0	37	<MDA	<MDA	14163	<IL	14744	6	6	TI-BGC1103-CRTFDCH-003	Concrete Foundation
4	1045	1	31	<MDA	<MDA	13062	<IL	13369	6	6	TI-BGC1103-CRTFDCH-004	Concrete Foundation
5	1108	0	33	<MDA	<MDA	13255	<IL	13560	6	6	TI-BGC1103-CRTFDCH-005	Concrete Foundation
6	1115	0	20	<MDA	<MDA	13908	<IL	15014	6	6	TI-BGC1103-CRTFDCH-006	Concrete Foundation
7	1237	0	32	<MDA	<MDA	13900	<IL	14647	6	6	TI-BGC1103-CRTFDCH-007	Concrete Foundation
8	1232	0	31	<MDA	<MDA	13190	<IL	13007	6	6	TI-BGC1103-CRTFDCH-008	Concrete Foundation
9	1254	0	33	<MDA	<MDA	13248	<IL	1289	6	6	TI-BGC1103-CRTFDCH-009	Concrete Foundation
10	1258	0	31	<MDA	<MDA	13940	<IL	20440	6	6	TI-BGC1103-CRTFDCH-010	Concrete Foundation
11	1320	0	28	<MDA	<MDA	14773	<IL	15803	6	6	TI-BGC1103-CRTFDCH-011	Concrete Foundation
12	1336	0	49	<MDA	<MDA	14677	<IL	14992	6	6	TI-BGC1103-CRTFDCH-012	Concrete Foundation
13	1420	0	30	<MDA	<MDA	16626	<IL	17582	6	6	TI-BGC1103-SBFDCH-001	Soil Under Concrete Foundation
14	1350	1	30	<MDA	<MDA	18654	<IL	26557	6	6	TI-BGC1103-SBFDCH-002	Soil Under Concrete Foundation
15	0925	0	36	<MDA	<MDA	23513	>IL	26339	6	6	TI-BGC1103-SBFDCH-003	Soil Under Concrete Foundation

Approved By: Takeshi Ibuki — *Print Name*; *Signature*; RE — *Title*; 5/28/2014 — *Date*

FRM-TI-01-1

CB&I Federal Services

(Printed Name)
Surveyor: Dennis Morrison Lester Sharp

Survey Number: TIRS- 05192014 BGC JSS 074

(Signature)
Surveyor: Lester Sharp Date: 5-27-14

Sampling Location No.	Sampling Time	Removable Contamination #1				Gamma #3 cpm			Exposure Rate #3 µR/hr		Sample ID No.	Sample Description
		cpm/100 cm2		dpm/100 cm2		10 cm Above		15 cm Depth	Contact Gross	10 cm Gross		
		α	β/γ	α	β/γ	Gross	< IL?	Gross				
16	0920	1	37	<MDA	<MDA	18519	<IL	29118	6	6	TI-BGC1103-SBFDCH-004	Soil Under Concrete Foundation
17	0938	0	36	<MDA	<MDA	14437	<IL	16628	6	10	TI-BGC1103-SBFDCH-006	Soil Under Concrete Foundation
18	1010	0	32	<MDA	<MDA	14945	<IL	14984	6	6	TI-BGC1103-SBFDCH-008	Soil Under Concrete Foundation
19	1315	1	29	<MDA	<MDA	14396	<IL	26653	6	8	TI-BGC1103-SBFDCH-010	Soil Under Concrete Foundation
20	1112	0	33	<MDA	<MDA	17605	<IL	25522	6	6	TI-BGC1103-SBFDCH-011	Soil Under Concrete Foundation
21	1055	0	43	<MDA	<MDA	16640	<IL	17573	6	6	TI-BGC1103-SBFDCH-012	Soil Under Concrete Foundation
22		0	31	<MDA	<MDA				6			Exterior of Cooler
23		1	39	<MDA	<MDA				6			Interior of Cooler

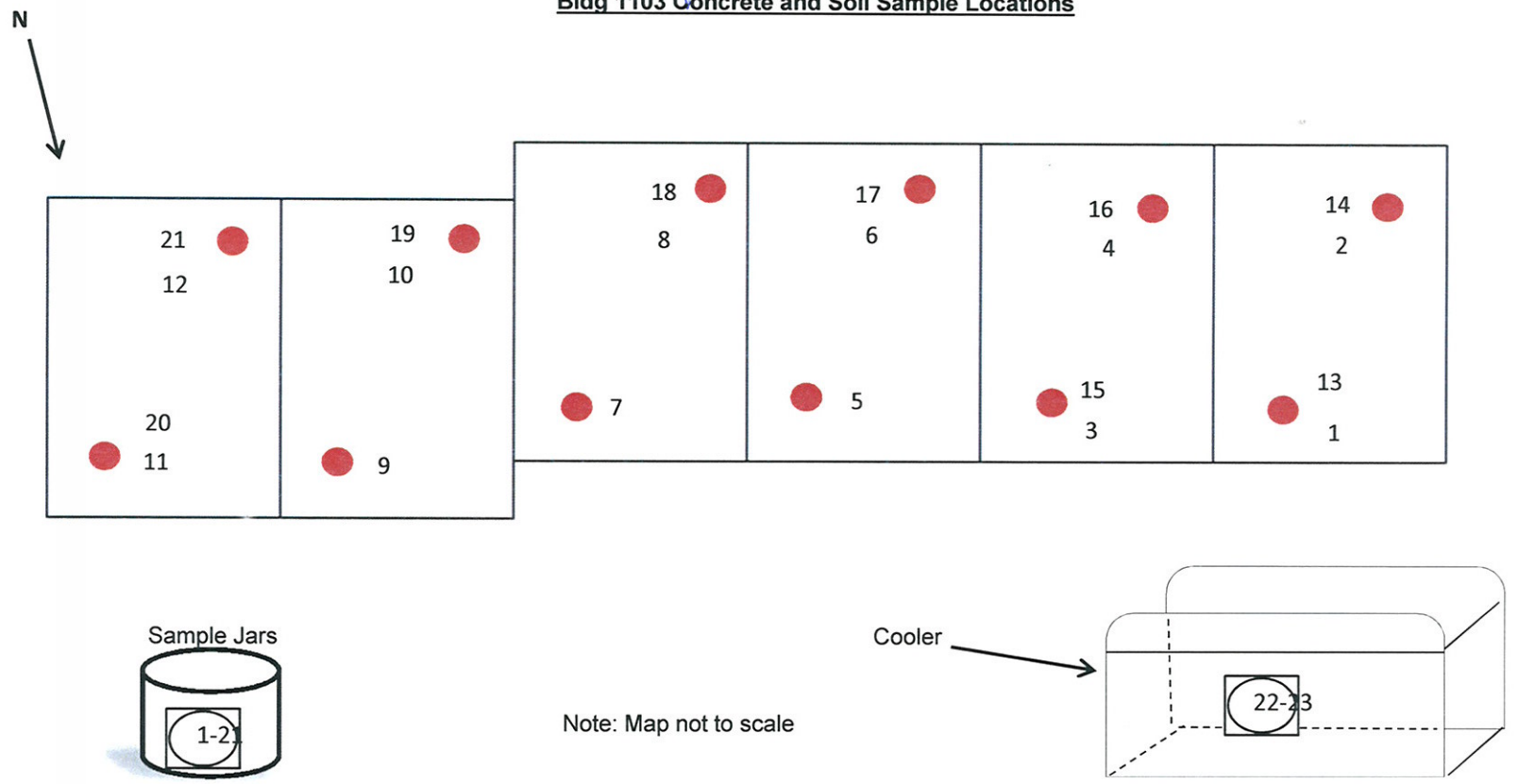
Shaw Environmental, Inc.

(Printed Name) **Surveyor:** Dennis Morrison Lester Sharp

(Signature) **Surveyor:** Date: 5-27-14

Survey Number: TIRS- 05192014 BGC JSS 074

Bldg 1103 Concrete and Soil Sample Locations



Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Sample Location

*All exposure rates are general area unless otherwise noted.

FRM-TI-01-4

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/21/2014
9:07:44 AM

Header 1: Treasure Island
Header 2: 3030 S/N 265988
Header 3: alpha bkgd:0.2
Header 4: Beta bkgd:31.8
Header 5: BGC JSS-074
Header 6: RCT D.Morrison

Calibration Due Date: 7/16/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/21/2014	08:40:47	0	36	1.0	S	
2	5/21/2014	08:41:55	0	27	1.0	S	
3	5/21/2014	08:43:04	0	37	1.0	S	
4	5/21/2014	08:44:16	1	31	1.0	S	
5	5/21/2014	08:45:27	0	33	1.0	S	
6	5/21/2014	08:46:38	0	20	1.0	S	
7	5/21/2014	08:47:48	0	32	1.0	S	
8	5/21/2014	08:49:07	0	31	1.0	S	
9	5/21/2014	08:50:22	0	33	1.0	S	
10	5/21/2014	08:51:30	0	31	1.0	S	
11	5/21/2014	08:52:40	0	28	1.0	S	
12	5/21/2014	08:54:08	0	49	1.0	S	
13	5/21/2014	08:55:18	0	30	1.0	S	
14	5/21/2014	08:56:34	1	30	1.0	S	
15	5/21/2014	08:57:45	0	36	1.0	S	
16	5/21/2014	08:58:57	1	37	1.0	S	
17	5/21/2014	09:00:15	0	36	1.0	S	
18	5/21/2014	09:01:35	0	32	1.0	S	
19	5/21/2014	09:02:46	1	29	1.0	S	
20	5/21/2014	09:04:00	0	33	1.0	S	
21	5/21/2014	09:05:09	0	43	1.0	S	
22	5/21/2014	09:06:18	0	31	1.0	S	
23	5/21/2014	09:07:27	1	39	1.0	S	

(Printed Name)
Surveyor: Dennis Morrison Lester Sharp
(Signature)
Surveyor: Date: 5-27-14
Survey Number: TIRS- 05192014 BGC JSS 074

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05302014 BGC JSS 097

Survey Description:

Gamma Scan Survey performed at Bigelow Court Building 1103-A underside of concrete foundation.
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine presence of any point sources underside of the concrete foundation.
No indication of a point source was identified.
Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 5/30/2014 **Time:** 1000 **End Date:** 5/30/2014 **Time:** 1100

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 06/13/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4				Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr				
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	Contact Net	1 m Gross	1 m Net	
Building 1103-A															Scan Range:13,400 - 21,200 cpm

TI/RS

Approved By: Takeshi Ibuki [signature] RE 6/13/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 06022014 BGC GWS 104

Survey Description:

Gamma scan survey performed with Ludlum 2221/44-20 at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of soil and observing both audio and visual meter response. The purpose of this survey is to identify any possible anomalies after removal of concrete from building 1103 foundation. Below concrete was a mixture of cobble and soil.

Note: No follow up statics required on associated positions greater than the IL's due to media being stockpiled for further analysis.

RWP: 2014 BGC JS 01 0

Start Date: 6/2/2014 **Time:** 0900 **End Date:** 6/2/2014 **Time:** 1030

(Printed Name) **Surveyor:** Robert Minard

(Signature) **Surveyor:** [signature] Date: 7/7/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	17635	Bkgd (lab):	
Ref Area IL(Scan)	21119	Area Bkgd	
Site	Location7	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
See Map														Scan Range: 13,619 - 27,165cpm

Approved By: Takeshi Ibuki [signature] RE 7/7/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 06062014 BGC GWS 120

Survey Description: Bigelow Court - Gamma Walkover Survey performed with Ludlum 2221/44-20 at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of soil and observing both audio and visual meter response. The purpose of this survey is to determine the activity in soil from Building 1103 subgrade after the concrete foundation was removed for a footprint baseline.

This survey was performed to establish radiological conditions prior to construction of RSY Pad 7.
Follow up statics will be performed on locations over the investigation levels.

RWP: 2014 BGC JS 01 0

Start Date: 6/6/2014 **Time:** 1240 **End Date:** 6/9/2014 **Time:** 1240

(Printed Name) **Surveyor:** Dennis Morrison

(Signature) **Surveyor:** [signature] Date: 6-18-14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	17635	Bkgd (lab):	
Ref Area IL(Scan)	21119	Area Bkgd	
Site	Location7	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
See Map														Scan Range: 12,973 - 22,370 cpm

Approved By: Takeshi Ibuki [signature] RE 6/23/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

Gamma Walkover Survey at Bigelow Court
1103 Footprint Baseline

Survey Number:
TIRS-06062014-BGC-GWS-120

Instrument #97290

- < Mean + 3 std dev (21,118 cpm)
- ≥ Mean + 3 std dev (Soil Scan IL 21,119 cpm)

CB&I Federal Services, LLC

N

0 12.5 25 50 Feet

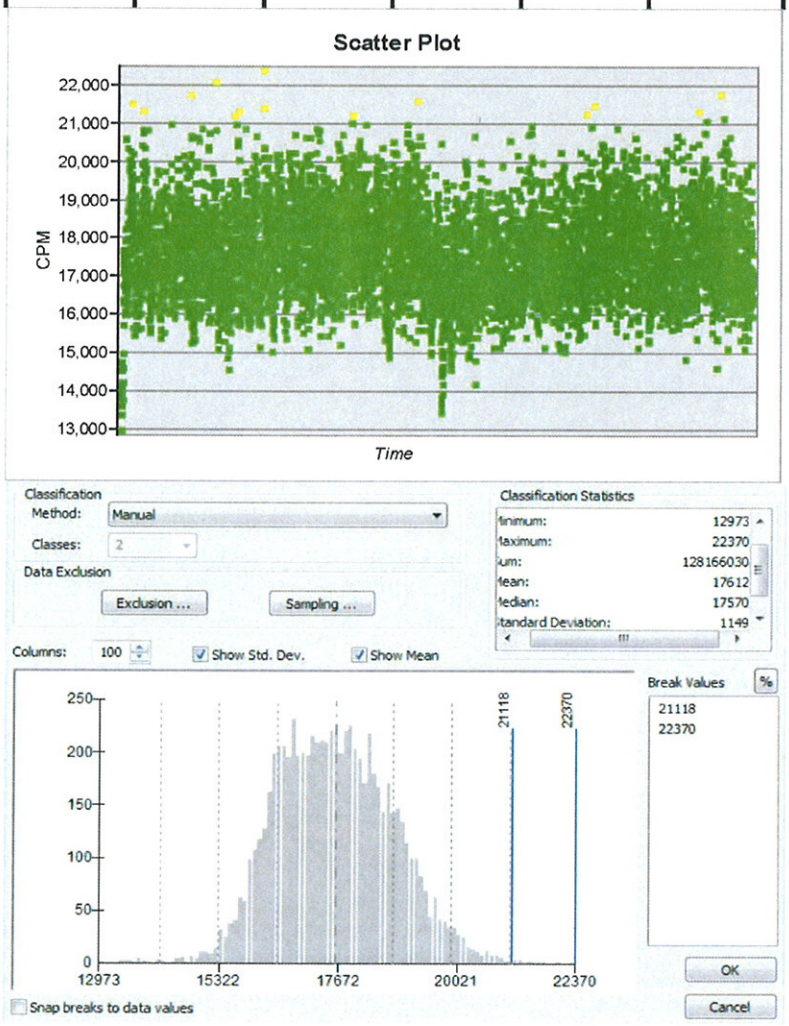
Coordinate system: CSP Zone III. NAD83, US Survey Foot

Data Processed In Treasure Island Office

Reviewed By: _____ **Date** 6/23/2014

Gamma Walkover Survey of Soil Under Building 1103 Foundation-Baseline

In the 13000s	In the 14000s	In the 15000s	In the 16000s	In the 17000s	In the 18000s	In the 19000s	In the 20000s
14	35	414	1893	2274	1783	702	145
In the 21000s	In the 22000s						
14	2						



CB&I Federal Services

RADIOLOGICAL SURVEY FORM / SAMPLE COLLECTION LOG

Survey Number: TIRS- 05222014 BGC JSS 081

Survey Description: Soil sampling: Gamma statics and exposure rates collected at Bldg 1103 below concrete foundation. Samples taken below Units B, C, and D. Purpose of sampling is to determine radiological status of area.

*1:Removable contamination survey and contact exposure rate survey performed on sample jars and cooler prior to being released from a controlled area.

*2: Exposure rate survey at 10 cm performed on actual sampling locations.

Weather: Overcast Temp: 65 °F Wind: 0 - 5 mph

Offsite Analysis Requested: Gamma Spec : Chain of Custody No:TI_Biglo1103_008

RWP: 2013 BGC JS 01 1

Start Date: 5/22/2014 **Time:** 0930 **End Date:** 5/22/2014 **Time:** 1255

(Printed Name)

Surveyor: Frederick Johnson Phillip Perez

(Signature)

Surveyor: Date: 6/5/14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	33.3%	29.6%
Serial #:	227355	Bkgd (lab) CPM:	0.3	31.8
Probe / #:		MDA (dpm/100cm²):	17	99
Cal. Due:	5/29/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm²):		
Cal. Due:		Count Time(min):		
Probe Area(cm²):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)		
Model:	2221	Model:	19	
Serial #:	97290	Serial #:	72162	
Cal. Due:	4/30/2015	Cal. Due:	02/10/2015	
Ref Area BKG(Static)	17961	Bkgd (lab):	5	µR/hr
Ref Area IL(Static)	21150	Area Bkgd	6	µR/hr
Site	Location7	Sat/Unsat:	sat	

Sampling Location No.	Sampling Time	*1 Removable Contamination #1				Gamma #3 cpm			Exposure Rate #4 µR/hr		Sample ID No.	Sample Description/Comments
		cpm/100 cm2		dpm/100 cm2		10 cm Above		15 cm Depth	Contact Gross *1	10 cm Gross *2		
		α	β/γ	α	β/γ	Gross	< IL?	Gross				
1	0930	0	30	<MDA	<MDA	13863	<IL	27825	5	6	TIBGC1103-SBFDCH-005	Soil Under Concrete Foundation
2	0957	0	40	<MDA	<MDA	14912	<IL	27841	5	6	TIBGC1103-SBFDCH-007	Soil Under Concrete Foundation
3	0855	0	30	<MDA	<MDA	14004	<IL	23399	5	6	TIBGC1103-SBFDCH-009	Soil Under Concrete Foundation
4	1254	1	24	<MDA	<MDA				5			Interior of Cooler
5	1255	0	28	<MDA	<MDA				5			Exterior of Cooler

Approved By: Takeshi Ibuki — *Print Name*; *Signature*; RE — *Title*; 6/6/2014 — *Date*

FRM-TI-01-1

Shaw Environmental, Inc.

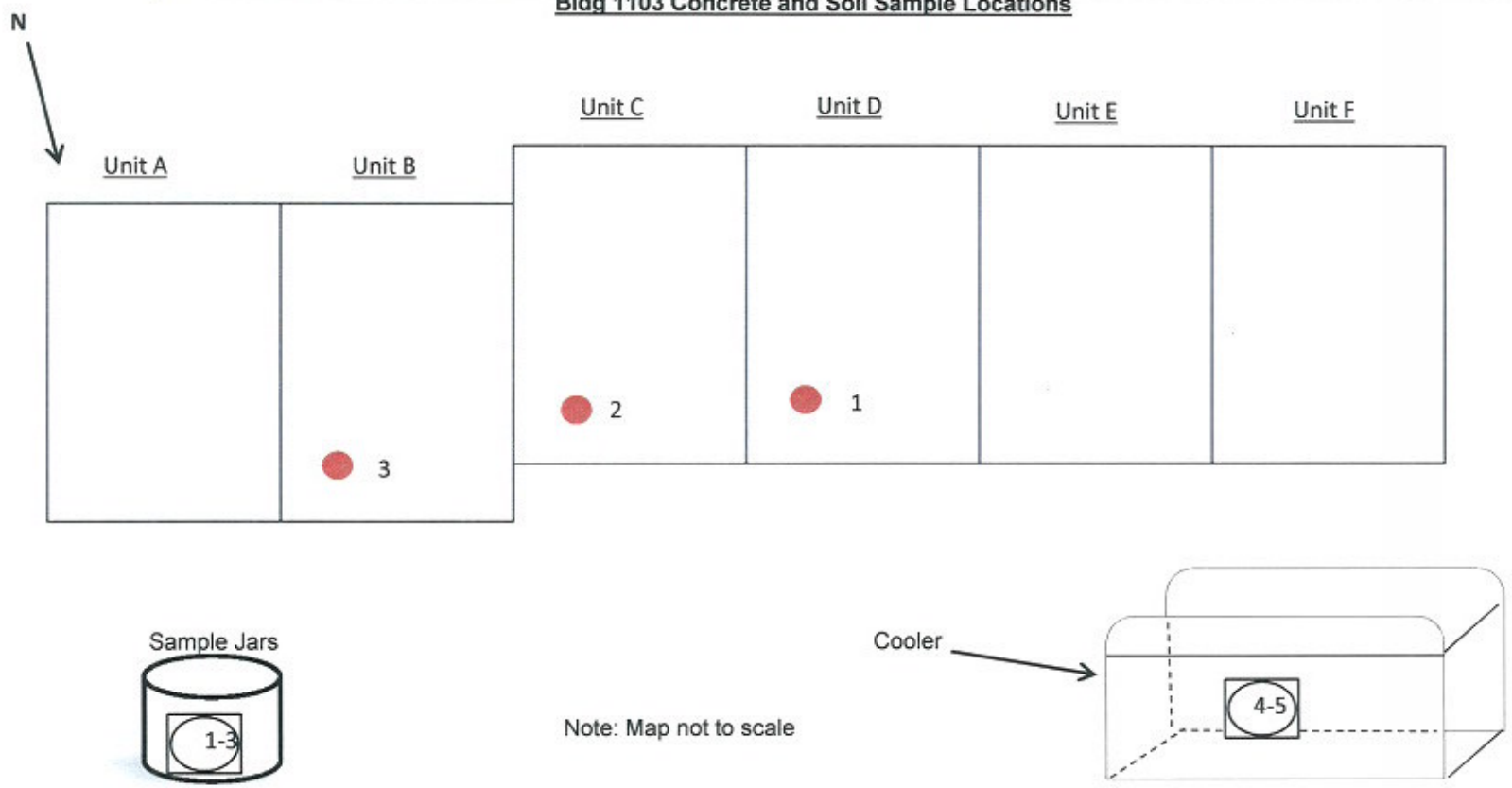
(Printed Name) **Surveyor:** Frederick Johnson Phillip Perez

(Signature) **Surveyor:**

Date: 6/5/14

Survey Number: TIRS- 05222014 BGC JSS 081

Bldg 1103 Concrete and Soil Sample Locations



Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/22/2014
12:56:13 PM

Header 1: Treasure Island
Header 2: 3030 S/N 227355
Header 3: Alpha BKGD:0.3
Header 4: Beta BKGD: 31.8
Header 5: 1103 Samples
Header 6: RCT:P Perez

Calibration Due Date: 5/29/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/22/2014	12:09:56	0	30	1	S	
2	5/22/2014	12:11:11	0	40	1	S	
3	5/22/2014	12:12:44	0	30	1	S	
4	5/22/2014	12:54:11	1	24	1	S	
5	5/22/2014	12:55:26	0	28	1	S	

(Printed Name)
Surveyor: Frederick Johnson Phillip Perez
(Signature)
Surveyor: Date: 6/5/14
Survey Number: TIRS- 05222014 BGC JSS 081

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05142014 BGC JSS 053

Survey Description:

Bigelow Court 1103 Unit B - Surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit B. One square meter grid pattern was used for tracking. Survey included 100% scan, one minute static, and an associated smear taken at the center of every grid. Elevated alpha and beta static counts above MDA (less than Release Limits) were identified. Concrete samples will be obtained for further analysis.

Note: During the period of surveying the foundation of Building 1103, surveys did not identify removable and total contamination exceeding the applicable Reg. Guide 1.86 Table 1 Release Limits.

RWP: 2013 BGC JS 01 1

Start Date: 5/14/2014 **Time:** 0810 **End Date:** 5/27/2014 **Time:** 1430

(Printed Name) **Surveyor:** Lester Sharp

(Signature) **Surveyor:** Lester Sharp **Date:** 6-4-14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.2%	33.3%
Serial #:	265988	Bkgd (lab) CPM:	0.2	31.8
Probe / #:		MDA (dpm/100cm²):	16	88
Cal. Due:	7/16/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	20.6%	31.9%
Serial #:	184934	Bkgd (lab) CPM:	1.9	255.1
Probe / #:	PR090881	MDA (dpm/100cm²):	8	41
Cal. Due:	6/24/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	6	434
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1 α cpm/100 cm2	Removable Contamination #1 β/γ cpm/100 cm2	Removable Contamination #1 α dpm/100 cm2	Removable Contamination #1 β/γ dpm/100 cm2	Total Contamination #2 α cpm/probe area	Total Contamination #2 β/γ cpm/probe area	Total Contamination #2 α dpm/100cm2	Total Contamination #2 β/γ dpm/100cm2	Gamma #3 Gross cpm	Gamma #3 < or ≥ IL	Exposure Rate #4 µR/hr Contact Gross	Exposure Rate #4 µR/hr 30 cm Gross	Comments
1	0	34	<MDA	<MDA	13	640	9	207					Grid 1
2	0	31	<MDA	<MDA	9	678	<MDA	227					Grid 2
3	0	29	<MDA	<MDA	20	671	15	223					Grid 3
4	1	28	<MDA	<MDA	22	672	17	224					Grid 4
5	0	36	<MDA	<MDA	24	692	18	235					Grid 5
6	0	30	<MDA	<MDA	18	648	13	211					Grid 6
7	0	30	<MDA	<MDA	18	631	13	202					Grid 7
8	0	33	<MDA	<MDA	20	691	15	234					Grid 8
9	1	30	<MDA	<MDA	23	693	18	235					Grid 9
10	0	28	<MDA	<MDA	18	653	13	214					Grid 10
11	0	30	<MDA	<MDA	16	668	12	222					Grid 11
12	0	27	<MDA	<MDA	16	636	12	205					Grid 12
13	0	26	<MDA	<MDA	15	618	11	195					Grid 13
14	0	33	<MDA	<MDA	23	678	18	227					Grid 14
15	0	27	<MDA	<MDA	22	680	17	228					Grid 15
16	0	38	<MDA	<MDA	15	660	11	217					Grid 16
17	1	30	<MDA	<MDA	13	676	9	226					Grid 17
18	0	21	<MDA	<MDA	13	651	9	213					Grid 18
19	0	42	<MDA	<MDA	20	637	15	205					Grid 19
20	0	36	<MDA	<MDA	20	686	15	231					Grid 20

Approved By: Takeshi Ibuki *Print Name* — *Signature* — RE *Title* — 6/4/2014 *Date*

(Printed Name)
Surveyor: Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: 6-4-14

Survey Number: TIRS- 05142014 BGC JSS 053

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	33	<MDA	<MDA	22	670	17	223					Grid 21
22	0	37	<MDA	<MDA	17	650	13	212					Grid 22
23	0	28	<MDA	<MDA	22	687	17	232					Grid 23
24	0	29	<MDA	<MDA	16	690	12	234					Grid 24
25	0	25	<MDA	<MDA	20	664	15	220					Grid 25
26	0	29	<MDA	<MDA	22	669	17	222					Grid 26
27	1	33	<MDA	<MDA	10	680	<MDA	228					Grid 27
28	0	37	<MDA	<MDA	10	684	<MDA	230					Grid 28
29	0	31	<MDA	<MDA	15	668	11	222					Grid 29
30	0	31	<MDA	<MDA	20	642	15	208					Grid 30
31	0	27	<MDA	<MDA	20	659	15	217					Grid 31
32	0	39	<MDA	<MDA	18	656	13	215					Grid 32
33	0	26	<MDA	<MDA	23	606	18	188					Grid 33
34	1	28	<MDA	<MDA	15	660	11	217					Grid 34
35	0	29	<MDA	<MDA	16	690	12	234					Grid 35
36	0	34	<MDA	<MDA	17	660	13	217					Grid 36
37	0	36	<MDA	<MDA	24	664	18	220					Grid 37
38	0	38	<MDA	<MDA	20	692	15	235					Grid 38
39	0	29	<MDA	<MDA	24	672	18	224					Grid 39
40	0	34	<MDA	<MDA	20	676	15	226					Grid 40
41	0	31	<MDA	<MDA	18	671	13	223					Grid 41
42	0	36	<MDA	<MDA	18	719	13	249					Grid 42
43	0	33	<MDA	<MDA	11	645	<MDA	209					Grid 43
44	0	30	<MDA	<MDA	15	734	11	257					Grid 44
45	0	30	<MDA	<MDA	15	707	11	243					Grid 45
46	0	34	<MDA	<MDA	16	647	12	210					Grid 46
47	0	30	<MDA	<MDA	15	719	11	249					Grid 47
48	0	33	<MDA	<MDA	19	674	14	225					Grid 48
49	0	37	<MDA	<MDA	21	691	16	234					Grid 49
50	0	46	<MDA	<MDA	11	708	<MDA	243					Grid 50
51	0	34	<MDA	<MDA	15	718	11	249					Grid 51
52	0	31	<MDA	<MDA	16	691	12	234					Grid 52
53	0	24	<MDA	<MDA	23	685	18	231					Grid 53
54	1	30	<MDA	<MDA	16	724	12	252					Grid 54
55	1	29	<MDA	<MDA	13	713	9	246					Grid 55
56	0	34	<MDA	<MDA	12	694	8	236					Grid 56
57	0	39	<MDA	<MDA	11	699	<MDA	238					Grid 57
58	0	34	<MDA	<MDA	22	738	17	259					Grid 58
59	0	32	<MDA	<MDA	10	643	<MDA	208					Grid 59
60					16	704	12	241					Grid 5 Follow Up

(Printed Name)
Surveyor: Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: Date: 6-4-14

Survey Number: TIRS- 05142014 BGC JSS 053

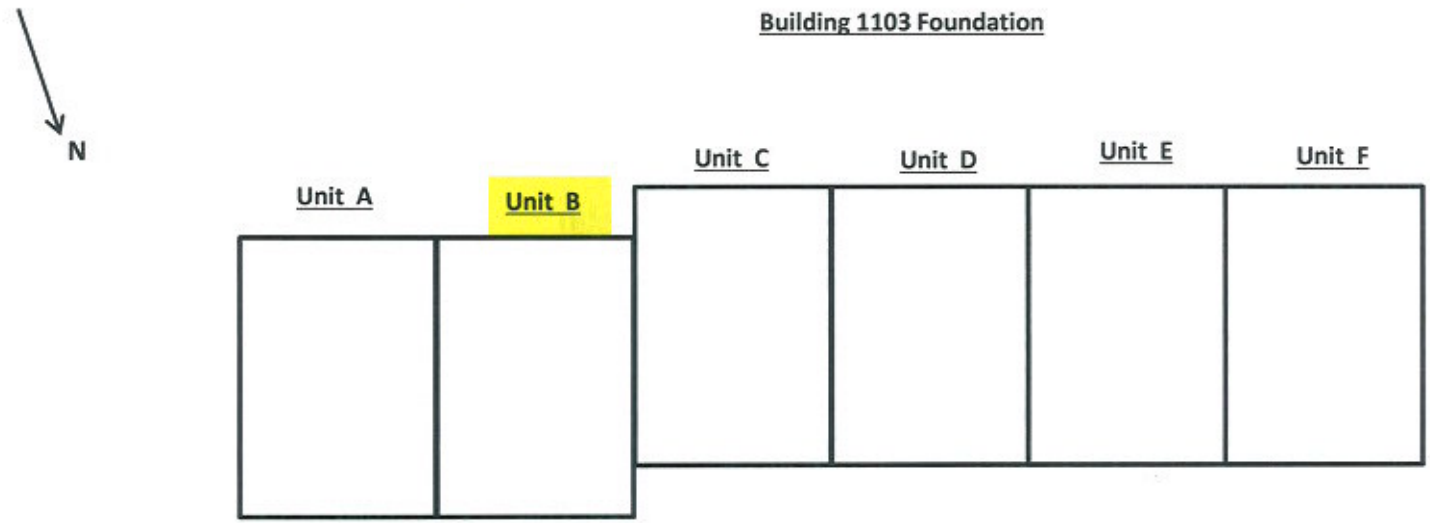
Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					26	671	20	223					Grid 14 Follow Up
62					12	723	8	251					Grid 33 Follow Up
63					14	683	10	230					Grid 53 Follow Up
64					6	423	<MDA	90					Grid 9 Follow Up
65					3	456	<MDA	108					Grid 21 Follow Up
66					6	418	<MDA	87					Grid 23 Follow Up
67					7	416	<MDA	86					Grid 37 Follow Up
68					7	448	<MDA	104					Grid 39 Follow Up
69					7	442	<MDA	100					Grid 44 Follow Up
70					11	448	<MDA	104					Grid 51 Follow Up
71					5	452	<MDA	106					Grid 58 Follow Up

(Printed Name) **Surveyor:** Lester Sharp

(Signature) **Surveyor:** Lester Sharp Date: 6-4-14

Survey Number: TIRS- 05142014 BGC JSS 053

Building 1103 Foundation



Description

Total 59 of one square meter grids were established within Unit B. 100% scan survey on all accessible surface performed. A static count performed and a smears obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/15/2014
11:16:36 AM

Header 1: Treasure Island
Header 2: 3030 S/N 265988
Header 3: Alpha BKGD:0.3
Header 4: Beta BKGD: 31.8
Header 5: BGC-1103-B
Header 6: RCT:L. Sharp

Calibration Due Date: 5/29/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/15/2014	09:14:37		0 34	1	S	
2	5/15/2014	09:16:35		0 31	1	S	
3	5/15/2014	09:18:01		0 29	1	S	
4	5/15/2014	09:19:18		1 28	1	S	
5	5/15/2014	09:20:43		0 36	1	S	
6	5/15/2014	09:22:12		0 30	1	S	
7	5/15/2014	09:24:03		0 30	1	S	
8	5/15/2014	09:25:32		0 33	1	S	
9	5/15/2014	09:27:33		1 30	1	S	
10	5/15/2014	09:30:20		0 28	1	S	
11	5/15/2014	09:32:17		0 30	1	S	
12	5/15/2014	09:34:52		0 27	1	S	
13	5/15/2014	09:39:41		0 26	1	S	
14	5/15/2014	09:43:21		0 33	1	S	
15	5/15/2014	09:45:04		0 27	1	S	
16	5/15/2014	09:47:05		0 38	1	S	
17	5/15/2014	09:49:21		1 30	1	S	
18	5/15/2014	09:52:02		0 21	1	S	
19	5/15/2014	09:56:10		0 42	1	S	
20	5/15/2014	09:58:42		0 36	1	S	
21	5/15/2014	10:01:30		0 33	1	S	
22	5/15/2014	10:02:49		0 37	1	S	
23	5/15/2014	10:04:53		0 28	1	S	
24	5/15/2014	10:07:05		0 29	1	S	
25	5/15/2014	10:08:32		0 25	1	S	

(Printed Name)
Surveyor: Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: 6-4-14
Survey Number: TIRS- 05142014 BGC JSS 053

26	5/15/2014	10:10:36		0	29	1	S
27	5/15/2014	10:12:34		1	33	1	S
28	5/15/2014	10:15:00		0	37	1	S
29	5/15/2014	10:16:51		0	31	1	S
30	5/15/2014	10:18:34		0	31	1	S
31	5/15/2014	10:20:11		0	27	1	S
32	5/15/2014	10:21:46		0	39	1	S
33	5/15/2014	10:23:15		0	26	1	S
34	5/15/2014	10:25:14		1	28	1	S
35	5/15/2014	10:26:49		0	29	1	S
36	5/15/2014	10:28:35		0	34	1	S
37	5/15/2014	10:30:08		0	36	1	S
38	5/15/2014	10:31:45		0	38	1	S
39	5/15/2014	10:34:30		0	29	1	S
40	5/15/2014	10:36:19		0	34	1	S
41	5/15/2014	10:38:41		0	31	1	S
42	5/15/2014	10:40:34		0	36	1	S
43	5/15/2014	10:42:07		0	33	1	S
44	5/15/2014	10:43:44		0	30	1	S
45	5/15/2014	10:45:14		0	30	1	S
46	5/15/2014	10:46:56		0	34	1	S
47	5/15/2014	10:48:32		0	30	1	S
48	5/15/2014	10:50:06		0	33	1	S
49	5/15/2014	10:51:31		0	37	1	S
50	5/15/2014	10:55:47		0	46	1	S
51	5/15/2014	10:58:58		0	34	1	S
52	5/15/2014	11:00:58		0	31	1	S
53	5/15/2014	11:02:17		0	24	1	S
54	5/15/2014	11:06:02		1	30	1	S
55	5/15/2014	11:08:27		1	29	1	S
56	5/15/2014	11:10:19		0	34	1	S
57	5/15/2014	11:12:03		0	39	1	S
58	5/15/2014	11:13:45		0	34	1	S
59	5/15/2014	11:15:09		0	32	1	S

(Printed Name)
Surveyor: Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: 6-4-14
Survey Number: TIRS- 05142014 BGC JSS 053

Header 1:	Treasure Island
Header 2:	2360 S/N 184934
Header 3:	Alpha Bkgd:1.9
Header 4:	Beta Bkgd:424.4
Header 5:	1103 Unit B
Header 6:	RCT: L. Sharp
S=Scaler,	R=Ratemeter

Sample #	Date	Time		Alpha	Beta	S/R	Count Time	Location
	5/14/2014	8:07	AM	6	434	S	BKGD	
1	5/14/2014	12:43	PM	13	640	S		
2	5/14/2014	12:45	PM	9	678	S		
3	5/14/2014	12:47	PM	20	671	S		
4	5/14/2014	12:49	PM	22	672	S		
5	5/14/2014	12:52	PM	24	692	S		
6	5/14/2014	12:54	PM	18	648	S		
7	5/14/2014	12:55	PM	18	631	S		
8	5/14/2014	1:05	PM	20	691	S		
9	5/14/2014	1:06	PM	23	693	S		
10	5/14/2014	1:08	PM	18	653	S		
11	5/14/2014	1:09	PM	16	668	S		
12	5/14/2014	1:11	PM	16	636	S		
13	5/14/2014	1:12	PM	15	618	S		
14	5/14/2014	1:13	PM	23	678	S		
15	5/14/2014	1:15	PM	22	680	S		
16	5/14/2014	1:16	PM	15	660	S		
17	5/14/2014	1:17	PM	13	676	S		
18	5/14/2014	1:19	PM	13	651	S		
19	5/14/2014	1:20	PM	20	637	S		
20	5/14/2014	1:24	PM	20	686	S		
21	5/14/2014	1:26	PM	22	670	S		
22	5/14/2014	1:27	PM	17	650	S		
23	5/14/2014	1:29	PM	22	687	S		
24	5/14/2014	1:30	PM	16	690	S		
25	5/14/2014	1:31	PM	20	664	S		
26	5/14/2014	1:33	PM	22	669	S		
27	5/14/2014	1:35	PM	10	680	S		
28	5/14/2014	1:37	PM	10	684	S		
29	5/14/2014	1:38	PM	15	668	S		
30	5/14/2014	1:40	PM	20	642	S		
31	5/14/2014	1:41	PM	20	659	S		
32	5/14/2014	1:43	PM	18	656	S		

(Printed Name)
Surveyor: Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: 6-4-14
Survey Number: TIRS- 05142014 BGC JSS 053

33	5/14/2014	1:45 PM	23	606	S
34	5/14/2014	1:46 PM	15	660	S
35	5/14/2014	1:48 PM	16	690	S
36	5/14/2014	1:51 PM	17	660	S
37	5/14/2014	1:52 PM	24	664	S
38	5/14/2014	1:54 PM	20	692	S
39	5/14/2014	1:55 PM	24	672	S
40	5/14/2014	1:56 PM	20	676	S
41	5/14/2014	1:58 PM	18	671	S
42	5/14/2014	1:59 PM	18	719	S
43	5/14/2014	2:01 PM	11	645	S
44	5/14/2014	2:03 PM	15	734	S
45	5/14/2014	2:05 PM	15	707	S
46	5/14/2014	2:06 PM	16	647	S
47	5/14/2014	2:08 PM	15	719	S
48	5/14/2014	2:09 PM	19	674	S
49	5/14/2014	2:10 PM	21	691	S
50	5/14/2014	2:12 PM	11	708	S
51	5/14/2014	2:13 PM	15	718	S
52	5/14/2014	2:15 PM	16	691	S
53	5/14/2014	2:16 PM	23	685	S
54	5/14/2014	2:17 PM	16	724	S
55	5/14/2014	2:18 PM	13	713	S
56	5/14/2014	2:19 PM	12	694	S
57	5/14/2014	2:21 PM	11	699	S
58	5/14/2014	2:22 PM	22	738	S
59	5/14/2014	2:23 PM	10	643	S
60	5/14/2014	2:32 PM	16	704	S
61	5/14/2014	2:34 PM	26	671	S
62	5/14/2014	2:35 PM	12	723	S
63	5/14/2014	2:37 PM	14	683	S
64	5/27/2014	11:20:07 AM	6	423	S
65	5/27/2014	11:25:06 AM	3	456	S
66	5/27/2014	11:27:00 AM	6	418	S
67	5/27/2014	11:28:46 AM	7	416	S
68	5/27/2014	11:30:21 AM	7	448	S
69	5/27/2014	12:28:48 PM	7	442	S
70	5/27/2014	12:31:18 PM	11	448	S
71	5/27/2014	12:33:16 PM	5	452	S

(Printed Name)
Surveyor: Lester Sharp
(Signature)
Surveyor: Lester Sharp Date: 6-4-14
Survey Number: TIRS- 05142014 BGC JSS 053

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- **05302014** **BGC** **JSS** **098**

Survey Description:

Gamma Walkover Survey performed at Bigelow Court Building 1103 B underside of concrete foundation
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine any presence of commodities or point sources underside of the concrete foundation.
No indication of a commodity or point source was identified.
Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 5/30/2014 **Time:** 1230 **End Date:** 5/30/2014 **Time:** 1315

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 06/13/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4				Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr				
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	Contact Net	1 m Gross	1 m Net	
Building 1103-B															Scan Range: 13,200 - 20,900 cpm

Approved By: Takeshi Ibuki *Print Name* [signature] *Signature* RE *Title* 6/13/2014 *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05142014 BGC JSS 054

Survey Description:

Bigelow Court 1103 Unit C - Surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit C. One square meter grid pattern was used for tracking. Survey included 100% scan, one minute static, and an associated smear taken at the center of every grid. Elevated alpha and beta static counts above MDA (less than Release Limit) were identified. Concrete samples will be obtained for further analysis.

Note: During the period of surveying the foundation of Building 1103, surveys did not identify total contamination exceeding the applicable Reg. Guide 1.86 Table 1 release limits.

RWP: 2013 BGC JS 01 1

Start Date: 5/14/2014 **Time:** 0800 **End Date:** 5/15/2014 **Time:** 0930

(Printed Name) **Surveyor:** Joseph Norris

(Signature) **Surveyor:** Joe Norris Date: 5-22-2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.2%	33.3%
Serial #:	265988	Bkgd (lab) CPM:	0.2	31.8
Probe / #:		MDA (dpm/100cm²):	16	88
Cal. Due:	7/16/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	22.6%	32.3%
Serial #:	202462	Bkgd (lab) CPM:	1.3	227.8
Probe / #:	PR090880	MDA (dpm/100cm²):	6	39
Cal. Due:	6/24/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	4	239
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1 α cpm/100 cm2	Removable Contamination #1 β/γ cpm/100 cm2	Total Contamination #2 α dpm/100 cm2	Total Contamination #2 β/γ dpm/100 cm2	Total Contamination #2 α cpm/probe area	Total Contamination #2 β/γ cpm/probe area	Gamma #3 Gross cpm	Gamma #3 < or ≥ IL	Exposure Rate #4 µR/hr Contact Gross	Exposure Rate #4 µR/hr 30 cm Gross	Comments
1	0	40	<MDA	<MDA	11	351	7	65			Grid 1
2	0	29	<MDA	<MDA	14	384	10	83			Grid 2
3	0	22	<MDA	<MDA	11	374	7	77			Grid 3
4	0	34	<MDA	<MDA	11	388	7	85			Grid 4
5	0	30	<MDA	<MDA	11	393	7	87			Grid 5
6	0	36	<MDA	<MDA	13	402	9	92			Grid 6
7	0	40	<MDA	<MDA	12	379	8	80			Grid 7
8	0	31	<MDA	<MDA	19	373	13	77			Grid 8
9	0	31	<MDA	<MDA	17	553	12	172			Grid 9
10	0	30	<MDA	<MDA	13	382	9	82			Grid 10
11	0	34	<MDA	<MDA	19	396	13	89			Grid 11
12	0	28	<MDA	<MDA	18	373	13	77			Grid 12
13	0	37	<MDA	<MDA	10	381	7	81			Grid 13
14	0	23	<MDA	<MDA	13	393	9	87			Grid 14
15	0	34	<MDA	<MDA	12	395	8	89			Grid 15
16	0	27	<MDA	<MDA	23	431	16	108			Grid 16
17	0	40	<MDA	<MDA	17	405	12	94			Grid 17
18	0	32	<MDA	<MDA	12	373	8	77			Grid 18
19	0	33	<MDA	<MDA	20	421	14	102			Grid 19
20	0	37	<MDA	<MDA	10	458	7	122			Grid 20

Approved By: Takeshi Ibuki *Print Name* — *Signature* — RE *Title* — 5/22/2014 *Date*

(Printed Name)
Surveyor: Joseph Norris

(Signature)
Surveyor: Joe Norris Date: 5-22-2014

Survey Number: TIRS- 05142014 BGC JSS 054

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	24	<MDA	<MDA	9	501	<MDA	145					Grid 21
22	0	37	<MDA	<MDA	15	601	10	198					Grid 22
23	0	33	<MDA	<MDA	13	439	9	112					Grid 23
24	0	37	<MDA	<MDA	18	456	13	121					Grid 24
25	0	36	<MDA	<MDA	10	495	7	142					Grid 25
26	0	28	<MDA	<MDA	17	458	12	122					Grid 26
27	0	26	<MDA	<MDA	19	490	13	139					Grid 27
28	0	42	<MDA	<MDA	16	428	11	106					Grid 28
29	0	37	<MDA	<MDA	14	458	10	122					Grid 29
30	0	20	<MDA	<MDA	12	468	8	127					Grid 30
31	0	31	<MDA	<MDA	15	438	10	111					Grid 31
32	0	29	<MDA	<MDA	11	424	7	104					Grid 32
33	0	22	<MDA	<MDA	17	444	12	115					Grid 33
34	0	28	<MDA	<MDA	14	428	10	106					Grid 34
35	0	35	<MDA	<MDA	5	400	<MDA	91					Grid 35
36	0	36	<MDA	<MDA	13	459	9	122					Grid 36
37	0	32	<MDA	<MDA	13	456	9	121					Grid 37
38	0	35	<MDA	<MDA	16	468	11	127					Grid 38
39	0	24	<MDA	<MDA	19	491	13	139					Grid 39
40	0	38	<MDA	<MDA	23	455	16	120					Grid 40
41	2	35	<MDA	<MDA	19	460	13	123					Grid 41
42	0	39	<MDA	<MDA	14	494	10	141					Grid 42
43	0	40	<MDA	<MDA	19	451	13	118					Grid 43
44	0	34	<MDA	<MDA	19	445	13	115					Grid 44
45	0	27	<MDA	<MDA	22	460	16	123					Grid 45
46	1	27	<MDA	<MDA	16	477	11	132					Grid 46
47	2	26	<MDA	<MDA	13	463	9	125					Grid 47
48	1	31	<MDA	<MDA	18	416	13	100					Grid 48
49	0	30	<MDA	<MDA	19	471	13	129					Grid 49
50	0	37	<MDA	<MDA	16	438	11	111					Grid 50
51	0	24	<MDA	<MDA	21	478	15	133					Grid 51
52	0	40	<MDA	<MDA	17	454	12	120					Grid 52
53	1	31	<MDA	<MDA	25	460	18	123					Grid 53
54	0	43	<MDA	<MDA	16	504	11	146					Grid 54
55	0	24	<MDA	<MDA	13	419	9	101					Grid 55
56	0	29	<MDA	<MDA	13	500	9	144					Grid 56
57					17	490	12	139					Re count of GRID 53
58					15	470	10	128					Re count of GRID 45
59					11	449	7	117					Re count of GRID 12
60					17	450	12	118					Re count of GRID 8

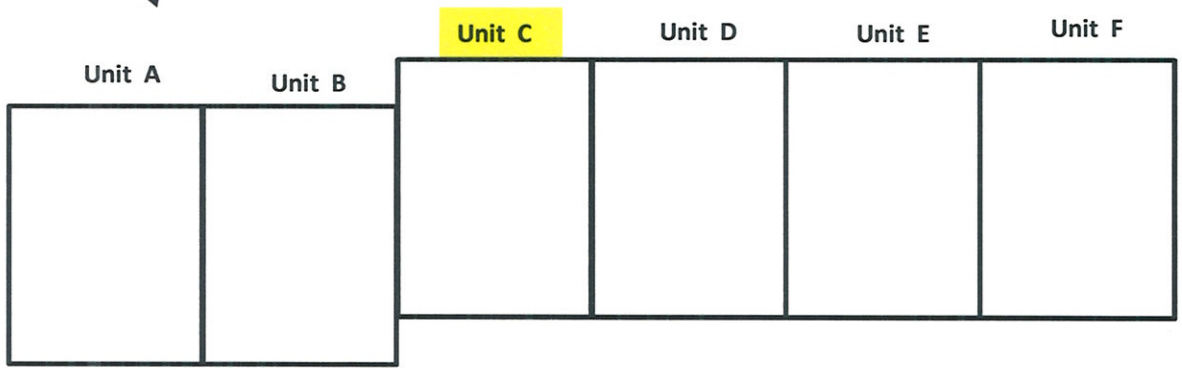
(Printed Name)
Surveyor: Joseph Norris

(Signature)
Surveyor: Joseph Norris Date: 5-22-2014

Survey Number:
TIRS- 05142014 BGC JSS 054

N

Building 1103 Foundation



Description

Total 56 of one square meter grids were established within Unit C. 100% scan survey on all accessible surface performed. A static count performed and a smears obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/15/2014
9:37:39 AM

Header 1: Treasure Island
Header 2: 3030 S/N 265988
Header 3: alpha bkgd:0.2
Header 4: Beta bkgd:31.8
Header 5: BGC 1103-C
Header 6: RCT:J. Norris

Calibration Due Date: 7/16/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/15/2014	08:03:40	0	40	1	S	
2	5/15/2014	08:05:26	0	29	1	S	
3	5/15/2014	08:07:15	0	22	1	S	
4	5/15/2014	08:08:40	0	34	1	S	
5	5/15/2014	08:10:32	0	30	1	S	
6	5/15/2014	08:13:10	0	36	1	S	
7	5/15/2014	08:15:02	0	40	1	S	
8	5/15/2014	08:17:13	0	31	1	S	
9	5/15/2014	08:18:28	0	31	1	S	
10	5/15/2014	08:19:47	0	30	1	S	
11	5/15/2014	08:21:43	0	34	1	S	
12	5/15/2014	08:23:15	0	28	1	S	
13	5/15/2014	08:25:52	0	37	1	S	
14	5/15/2014	08:27:19	0	23	1	S	
15	5/15/2014	08:29:16	0	34	1	S	
16	5/15/2014	08:31:07	0	27	1	S	
17	5/15/2014	08:32:33	0	40	1	S	
18	5/15/2014	08:33:47	0	32	1	S	
19	5/15/2014	08:35:17	0	33	1	S	
20	5/15/2014	08:37:04	0	37	1	S	
21	5/15/2014	08:38:58	0	24	1	S	
22	5/15/2014	08:40:16	0	37	1	S	
23	5/15/2014	08:41:33	0	33	1	S	
24	5/15/2014	08:42:45	0	37	1	S	
25	5/15/2014	08:44:00	0	36	1	S	

(Printed Name)
Surveyor: Joseph Norris
(Signature)
Surveyor: Date: 5-22-2014
Survey Number: TIRS- 05142014 BGC JSS 054

26	5/15/2014	08:45:17	0	28	1	S
27	5/15/2014	08:46:41	0	26	1	S
28	5/15/2014	08:48:03	0	42	1	S
29	5/15/2014	08:49:17	0	37	1	S
30	5/15/2014	08:50:30	0	20	1	S
31	5/15/2014	08:52:11	0	31	1	S
32	5/15/2014	08:53:41	0	29	1	S
33	5/15/2014	08:54:59	0	22	1	S
34	5/15/2014	08:56:14	0	28	1	S
35	5/15/2014	08:57:46	0	35	1	S
36	5/15/2014	08:59:00	0	36	1	S
37	5/15/2014	09:01:05	0	32	1	S
38	5/15/2014	09:02:22	0	35	1	S
39	5/15/2014	09:03:49	0	24	1	S
40	5/15/2014	09:05:19	0	38	1	S
41	5/15/2014	09:07:49	2	35	1	S
42	5/15/2014	09:09:01	0	39	1	S
43	5/15/2014	09:10:16	0	40	1	S
44	5/15/2014	09:11:45	0	34	1	S
45	5/15/2014	09:13:13	0	27	1	S
46	5/15/2014	09:15:00	1	27	1	S
47	5/15/2014	09:16:26	2	26	1	S
48	5/15/2014	09:18:00	1	31	1	S
49	5/15/2014	09:19:37	0	30	1	S
50	5/15/2014	09:21:01	0	37	1	S
51	5/15/2014	09:22:50	0	24	1	S
52	5/15/2014	09:24:10	0	40	1	S
53	5/15/2014	09:25:26	1	31	1	S
54	5/15/2014	09:27:07	0	43	1	S
55	5/15/2014	09:28:26	0	24	1	S
56	5/15/2014	09:30:17	0	29	1	S

(Printed Name)
Surveyor: Joseph Norris
(Signature)
Surveyor: Joe Norris Date: 5-22-2014
Survey Number: TIRS- 05142014 BGC JSS 054

Header 1: Treasure Island
Header 2: 2360 S/N 202462
Header 3: Alpha BKGD: 1.3
Header 4: Beta BKGD:227.8
Header 5: Bigelow 1103-C
Header 6: RCT:J.Norris

S=Scaler, R=Ratemeter

Sample #	Date	Time		Alpha	Beta	S/R	Count Time	Location
	5/14/2014	8:07	AM	4	239	S	1	BKGD
1	5/14/2014	9:50	AM	11	351	S	1	
2	5/14/2014	9:52	AM	14	384	S	1	
3	5/14/2014	9:53	AM	11	374	S	1	
4	5/14/2014	9:55	AM	11	388	S	1	
5	5/14/2014	9:58	AM	11	393	S	1	
6	5/14/2014	9:59	AM	13	402	S	1	
7	5/14/2014	10:00	AM	12	379	S	1	
8	5/14/2014	10:03	AM	19	373	S	1	
9	5/14/2014	10:07	AM	17	553	S	1	
10	5/14/2014	10:09	AM	13	382	S	1	
11	5/14/2014	10:10	AM	19	396	S	1	
12	5/14/2014	10:12	AM	18	373	S	1	
13	5/14/2014	10:13	AM	10	381	S	1	
14	5/14/2014	10:15	AM	13	393	S	1	
15	5/14/2014	10:17	AM	12	395	S	1	
16	5/14/2014	10:18	AM	23	431	S	1	
17	5/14/2014	10:20	AM	17	405	S	1	
18	5/14/2014	10:21	AM	12	373	S	1	
19	5/14/2014	10:23	AM	20	421	S	1	
20	5/14/2014	12:55	PM	10	458	S	1	
21	5/14/2014	12:57	PM	9	501	S	1	
22	5/14/2014	12:58	PM	15	601	S	1	
23	5/14/2014	1:00	PM	13	439	S	1	
24	5/14/2014	1:03	PM	18	456	S	1	
25	5/14/2014	1:05	PM	10	495	S	1	
26	5/14/2014	1:07	PM	17	458	S	1	
27	5/14/2014	1:09	PM	19	490	S	1	
28	5/14/2014	1:11	PM	16	428	S	1	
29	5/14/2014	1:13	PM	14	458	S	1	
30	5/14/2014	1:14	PM	12	468	S	1	
31	5/14/2014	1:17	PM	15	438	S	1	
32	5/14/2014	1:18	PM	11	424	S	1	
33	5/14/2014	1:20	PM	17	444	S	1	

(Printed Name)
Surveyor: Joseph Norris
(Signature)
Surveyor: Joe Norris Date: 5-22-2014
Survey Number: TIRS- 05142014 BGC JSS 054

34	5/14/2014 1:21 PM	14	428 S	1
35	5/14/2014 1:23 PM	5	400 S	1
36	5/14/2014 1:25 PM	13	459 S	1
37	5/14/2014 1:27 PM	13	456 S	1
38	5/14/2014 1:30 PM	16	468 S	1
39	5/14/2014 1:31 PM	19	491 S	1
40	5/14/2014 1:33 PM	23	455 S	1
41	5/14/2014 1:35 PM	19	460 S	1
42	5/14/2014 1:36 PM	14	494 S	1
43	5/14/2014 1:38 PM	19	451 S	1
44	5/14/2014 1:40 PM	19	445 S	1
45	5/14/2014 1:42 PM	22	460 S	1
46	5/14/2014 1:44 PM	16	477 S	1
47	5/14/2014 1:46 PM	13	463 S	1
48	5/14/2014 1:48 PM	18	416 S	1
49	5/14/2014 1:50 PM	19	471 S	1
50	5/14/2014 1:52 PM	16	438 S	1
51	5/14/2014 1:54 PM	21	478 S	1
52	5/14/2014 1:56 PM	17	454 S	1
53	5/14/2014 1:57 PM	25	460 S	1
54	5/14/2014 1:59 PM	16	504 S	1
55	5/14/2014 2:01 PM	13	419 S	1
56	5/14/2014 2:02 PM	13	500 S	1
57	5/14/2014 2:12 PM	17	490 S	1
58	5/14/2014 2:14 PM	15	470 S	1
59	5/14/2014 2:16 PM	11	449 S	1
60	5/14/2014 2:18 PM	17	450 S	1

(Printed Name)
Surveyor: Joseph Norris
(Signature)
Surveyor: Joe Norris Date: 5-22-2014
Survey Number: TIRS- 05142014 BGC JSS 054

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05302014 BGC JSS 099

Survey Description:

Gamma Walkover Survey performed at Bigelow Court Building 1103-C underside of concrete foundation
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine any presence of commodities or point sources underside of the concrete foundation.
No indication of a commodity or point source was identified.
Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 5/30/2014 **Time:** 1320 **End Date:** 5/30/2014 **Time:** 1445

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 06/19/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4				Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr				
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	Contact Net	1 m Gross	1 m Net	
Building 1103-C															Scan Range:13,600 - 21,800 cpm

TI/RS [signature]

Approved By: Takeshi Ibuki [signature] RE 6/20/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05132014 BGC JSS 046

Survey Description: Bigelow Court- Building 1103 Unit D - Total surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit D. A one square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the highest scan location or the center of the grids. Elevated static counts above MDA (less than Release Limit) were identified. Concrete samples will be obtained for further analysis.

RWP: 2013 BGC JS 01 1

Start Date: 5/13/2014 **Time:** 0800 **End Date:** 5/27/2014 **Time:** 1110

(Printed Name) **Surveyor:** Patricia Lozano

(Signature) **Surveyor:** [signature] Date: 7/7/14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	33.3%	29.6%
Serial #:	227355	Bkgd (lab) CPM:	0.3	31.8
Probe / #:		MDA (dpm/100cm²) :	17	99
Cal. Due:	5/29/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	13.4%	19.3%
Serial #:	275713	Bkgd (lab) CPM:	2.0	360.9
Probe / #:	190909	MDA (dpm/100cm²) :	12	81
Cal. Due:	10/29/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	9	378
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
1	0	36	<MDA	<MDA	7	389	<MDA	<MDA						Grid 1
2	0	35	<MDA	<MDA	11	418	<MDA	<MDA						Grid 2
3	0	31	<MDA	<MDA	7	389	<MDA	<MDA						Grid 3
4	0	43	<MDA	<MDA	11	453	<MDA	82						Grid 4
5	0	35	<MDA	<MDA	7	441	<MDA	<MDA						Grid 5
6	0	30	<MDA	<MDA	6	383	<MDA	<MDA						Grid 6
7	0	33	<MDA	<MDA	10	420	<MDA	<MDA						Grid 7
8	0	31	<MDA	<MDA	9	384	<MDA	<MDA						Grid 8
9	0	30	<MDA	<MDA	10	412	<MDA	<MDA						Grid 9
10	0	31	<MDA	<MDA	10	421	<MDA	<MDA						Grid 10
11	0	37	<MDA	<MDA	8	434	<MDA	<MDA						Grid 11
12	0	33	<MDA	<MDA	22	465	26	92						Grid 12
13	1	23	<MDA	<MDA	20	469	23	96						Grid 13
14	0	17	<MDA	<MDA	9	466	<MDA	93						Grid 14
15	0	32	<MDA	<MDA	13	473	14	99						Grid 15
16	0	34	<MDA	<MDA	12	480	13	106						Grid 16
17	0	25	<MDA	<MDA	11	498	<MDA	122						Grid 17
18	0	32	<MDA	<MDA	11	488	<MDA	113						Grid 18
19	1	31	<MDA	<MDA	16	473	18	99						Grid 19
20	0	41	<MDA	<MDA	15	469	17	96						Grid 20

Approved By: Takeshi Ibuki *Print Name* [signature] *Signature* RE *Title* 7/7/2014 *Date*

FRM-TI-01-1

CB&I Federal Services

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: [signature] Date: 7/7/14

Survey Number: TIRS- 05132014 BGC JSS 046

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	39	<MDA	<MDA	11	502	<MDA	125					Grid 21
22	0	36	<MDA	<MDA	9	496	<MDA	120					Grid 22
23	0	30	<MDA	<MDA	10	496	<MDA	120					Grid 23
24	0	37	<MDA	<MDA	19	525	22	146					Grid 24
25	0	23	<MDA	<MDA	8	472	<MDA	99					Grid 25
26	0	31	<MDA	<MDA	10	480	<MDA	106					Grid 26
27	0	27	<MDA	<MDA	9	514	<MDA	136					Grid 27
28	0	38	<MDA	<MDA	13	530	14	150					Grid 28
29	0	27	<MDA	<MDA	9	513	<MDA	135					Grid 29
30	0	30	<MDA	<MDA	9	478	<MDA	104					Grid 30
31	0	27	<MDA	<MDA	12	514	13	136					Grid 31
32	0	29	<MDA	<MDA	11	480	<MDA	106					Grid 32
33	1	29	<MDA	<MDA	15	556	17	173					Grid 33
34	0	32	<MDA	<MDA	15	510	17	132					Grid 34
35	0	28	<MDA	<MDA	9	548	<MDA	166					Grid 35
36	0	33	<MDA	<MDA	10	510	<MDA	132					Grid 36
37	0	31	<MDA	<MDA	11	517	<MDA	138					Grid 37
38	0	28	<MDA	<MDA	13	533	14	153					Grid 38
39	0	37	<MDA	<MDA	9	545	<MDA	163					Grid 39
40	0	38	<MDA	<MDA	10	520	<MDA	141					Grid 40
41	0	40	<MDA	<MDA	15	503	17	126					Grid 41
42	0	29	<MDA	<MDA	13	574	14	189					Grid 42
43	0	34	<MDA	<MDA	13	542	14	161					Grid 43
44	0	28	<MDA	<MDA	10	509	<MDA	131					Grid 44
45	0	29	<MDA	<MDA	10	544	<MDA	162					Grid 45
46	0	37	<MDA	<MDA	12	523	13	144					Grid 46
47	1	21	<MDA	<MDA	18	530	20	150					Grid 47
48	0	32	<MDA	<MDA	11	486	<MDA	111					Grid 48
49	0	22	<MDA	<MDA	12	510	13	132					Grid 49
50	0	33	<MDA	<MDA	21	559	24	176					Grid 50
51	0	20	<MDA	<MDA	9	535	<MDA	154					Grid 51
52	0	20	<MDA	<MDA	13	582	14	196					Grid 52
53	0	33	<MDA	<MDA	15	541	17	160					Grid 53
54	0	31	<MDA	<MDA	10	504	<MDA	127					Grid 54
55	0	38	<MDA	<MDA	21	503	24	126					Grid 55
56	0	35	<MDA	<MDA	11	541	<MDA	160					Grid 56
57					8	427	<MDA	<MDA					Grid 12- Follow up static static
58					7	494	<MDA	118					Grid 13- Follow up static static
59					10	486	<MDA	111					Grid 24- Follow up static static
60					5	496	<MDA	120					Grid 33- Follow up static static

CB&I Federal Services

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Patricia Lozano Date: 7/7/14

Survey Number: TIRS- 05132014 BGC JSS 046

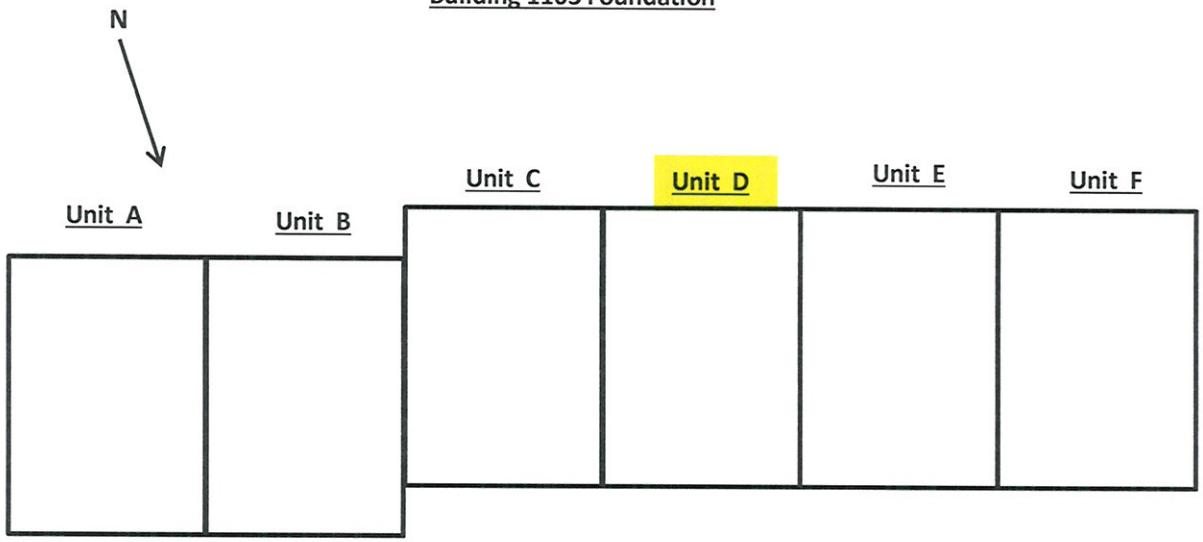
Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					7	579	<MDA	194					Grid 42- Follow up static static
62					10	552	<MDA	170					Grid 47- Follow up static static
63					10	590	<MDA	203					Grid 50- Follow up static static
64					8	537	<MDA	156					Grid 52- Follow up static static
65					8	548	<MDA	166					Grid 53- Follow up static static
66					5	532	<MDA	152					Grid 55- Follow up static static

(Printed Name) Surveyor: Patricia Lozano

(Signature) Surveyor: [signature] Date: 7/7/14

Survey Number: TIRS- 05132014 BGC JSS 046

Building 1103 Foundation



Description

Total 56 of one square meter grids were established within Unit D. 100% scan survey on all accessible surface performed. A static count performed and a smear obtained from each grid.

Legend

Smear Location	*Exposure Rate microR/hr	Commodity Location
Static Location	Soil Sample Location	

*All exposure rates are general area unless otherwise noted.

Header 1:	Treasure	Island
Header 2:	3030 S/N	227355
Header 3:	Alpha BKGD:	0.3
Header 4:	Beta BKGD:	31.8
Header 5:	BGC-1103-D	
Header 6:	RCT:P. Lozano	

Calibration Due Date: 5/29/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/14/2014	13:37:59	0	36	1	S	
2	5/14/2014	13:41:01	0	35	1	S	
3	5/14/2014	13:42:51	0	31	1	S	
4	5/14/2014	13:44:53	0	43	1	S	
5	5/14/2014	13:46:28	0	35	1	S	
6	5/14/2014	13:48:52	0	30	1	S	
7	5/14/2014	13:50:43	0	33	1	S	
8	5/14/2014	13:52:10	0	31	1	S	
9	5/14/2014	13:53:28	0	30	1	S	
10	5/14/2014	13:55:17	0	31	1	S	
11	5/14/2014	13:59:07	0	37	1	S	
12	5/14/2014	14:00:32	0	33	1	S	
13	5/14/2014	14:03:36	1	23	1	S	
14	5/14/2014	14:04:54	0	17	1	S	
15	5/14/2014	14:06:23	0	32	1	S	
16	5/14/2014	14:07:57	0	34	1	S	
17	5/14/2014	14:09:25	0	25	1	S	
18	5/14/2014	14:10:45	0	32	1	S	
19	5/14/2014	14:12:06	1	31	1	S	
20	5/14/2014	14:13:26	0	41	1	S	

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Date: 7/7/14
Survey Number: TIRS- 05132014 BGC JSS 046

21	5/14/2014	14:15:16	0	39	1 S
22	5/14/2014	14:16:54	0	36	1 S
23	5/14/2014	14:18:35	0	30	1 S
24	5/14/2014	14:20:05	0	37	1 S
25	5/14/2014	14:21:22	0	23	1 S
26	5/14/2014	14:23:02	0	31	1 S
27	5/14/2014	14:24:17	0	27	1 S
28	5/14/2014	14:26:17	0	38	1 S
29	5/14/2014	14:29:12	0	27	1 S
30	5/14/2014	14:30:37	0	30	1 S
31	5/14/2014	14:31:48	0	27	1 S
32	5/14/2014	14:33:19	0	29	1 S
33	5/14/2014	14:34:41	1	29	1 S
34	5/14/2014	14:35:53	0	32	1 S
35	5/14/2014	14:37:12	0	28	1 S
36	5/14/2014	14:38:38	0	33	1 S
37	5/14/2014	14:40:01	0	31	1 S
38	5/14/2014	14:41:14	0	28	1 S
39	5/14/2014	14:42:29	0	37	1 S
40	5/14/2014	14:43:53	0	38	1 S
41	5/14/2014	14:45:51	0	40	1 S
42	5/14/2014	14:47:18	0	29	1 S
43	5/14/2014	14:49:41	0	34	1 S
44	5/14/2014	14:51:07	0	28	1 S
45	5/14/2014	14:52:51	0	29	1 S
46	5/14/2014	14:54:25	0	37	1 S
47	5/14/2014	14:55:38	1	21	1 S
48	5/14/2014	14:56:50	0	32	1 S
49	5/14/2014	14:58:02	0	22	1 S
50	5/14/2014	14:59:30	0	33	1 S
51	5/14/2014	15:00:42	0	20	1 S
52	5/14/2014	15:02:01	0	20	1 S
53	5/14/2014	15:03:14	0	33	1 S
54	5/14/2014	15:04:43	0	31	1 S
55	5/14/2014	15:05:55	0	38	1 S
56	5/14/2014	15:07:08	0	35	1 S

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Patricia Lozano Date: 7/3/14
Survey Number: TIRS- 05132014 BGC JSS 046

Header 1: Treasure Island
Header 2: 2360 S/N 275713
Header 3: Alpha BKGD: 2
Header 4: Beta BKGD: 360.9
Header 5: BGC 1103 D Concrete Pad
Header 6: RCT: P.Lozano

S=Scaler, R=Ratemeter

Sample #	Date	Time	Alpha	Beta	S/R	Count Time	Location
	5/13/2014	2:13:21 PM	9	378	S	1	BKG
1	5/13/2014	2:15:54 PM	7	389	S	1	
2	5/13/2014	2:17:44 PM	11	418	S	1	
3	5/13/2014	2:19:08 PM	7	389	S	1	
4	5/13/2014	2:20:29 PM	11	453	S	1	
5	5/13/2014	2:21:51 PM	7	441	S	1	
6	5/13/2014	2:23:12 PM	6	383	S	1	
7	5/13/2014	2:25:07 PM	10	420	S	1	
8	5/13/2014	2:26:30 PM	9	384	S	1	
9	5/13/2014	2:29:42 PM	10	412	S	1	
10	5/13/2014	2:31:19 PM	10	421	S	1	
11	5/13/2014	2:32:39 PM	8	434	S	1	
	5/14/2014	8:55:33 AM	6	424	S	1	BKG
12	5/14/2014	8:57:56 AM	22	465	S	1	
13	5/14/2014	8:59:51 AM	20	469	S	1	
14	5/14/2014	9:01:27 AM	9	466	S	1	
15	5/14/2014	9:03:00 AM	13	473	S	1	
16	5/14/2014	9:05:57 AM	12	480	S	1	
17	5/14/2014	9:07:34 AM	11	498	S	1	
18	5/14/2014	9:10:02 AM	11	488	S	1	
19	5/14/2014	9:11:27 AM	16	473	S	1	
20	5/14/2014	9:13:19 AM	15	469	S	1	

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Patricia Lozano Date: 7/7/14
Survey Number: TIRS- 05132014 BGC JSS 046

21	5/14/2014	9:15:01 AM	11	502 S	1
22	5/14/2014	9:17:17 AM	9	496 S	1
23	5/14/2014	9:18:36 AM	10	496 S	1
24	5/14/2014	9:20:24 AM	19	525 S	1
25	5/14/2014	9:22:37 AM	8	472 S	1
26	5/14/2014	9:24:06 AM	10	480 S	1
27	5/14/2014	9:26:12 AM	9	514 S	1
28	5/14/2014	9:27:35 AM	13	530 S	1
29	5/14/2014	9:28:59 AM	9	513 S	1
30	5/14/2014	9:30:17 AM	9	478 S	1
31	5/14/2014	9:32:02 AM	12	514 S	1
32	5/14/2014	9:34:16 AM	11	480 S	1
33	5/14/2014	9:35:36 AM	15	556 S	1
34	5/14/2014	9:37:27 AM	15	510 S	1
35	5/14/2014	9:38:50 AM	9	548 S	1
36	5/14/2014	9:41:02 AM	10	510 S	1
37	5/14/2014	9:42:44 AM	11	517 S	1
38	5/14/2014	9:45:29 AM	13	533 S	1
39	5/14/2014	9:46:58 AM	9	545 S	1
40	5/14/2014	9:49:04 AM	10	520 S	1
41	5/14/2014	9:51:59 AM	15	503 S	1
42	5/14/2014	9:53:25 AM	13	574 S	1
43	5/14/2014	9:54:50 AM	13	542 S	1
44	5/14/2014	9:56:38 AM	10	509 S	1
45	5/14/2014	9:58:12 AM	10	544 S	1
46	5/14/2014	9:59:54 AM	12	523 S	1
47	5/14/2014	10:01:18 AM	18	530 S	1
48	5/14/2014	10:02:39 AM	11	486 S	1
49	5/14/2014	10:04:07 AM	12	510 S	1
50	5/14/2014	10:05:30 AM	21	559 S	1
51	5/14/2014	10:07:08 AM	9	535 S	1
52	5/14/2014	10:08:51 AM	13	582 S	1
53	5/14/2014	10:10:16 AM	15	541 S	1
54	5/14/2014	10:12:00 AM	10	504 S	1
55	5/14/2014	10:15:12 AM	21	503 S	1
56	5/14/2014	10:16:41 AM	11	541 S	1
57	5/27/2014	10:51 AM	8	427 S	1
58	5/27/2014	10:53 AM	7	494 S	1
59	5/27/2014	10:55 AM	10	486 S	1
60	5/27/2014	10:57 AM	5	496 S	1
61	5/27/2014	10:59 AM	7	579 S	1
62	5/27/2014	11:01 AM	10	552 S	1
63	5/27/2014	11:03 AM	10	590 S	1
64	5/27/2014	11:04 AM	8	537 S	1
65	5/27/2014	11:06 AM	8	548 S	1
66	5/27/2014	11:08 AM	5	532 S	1

(Printed Name)
Surveyor: Patricia Lozano
(Signature)
Surveyor: Patricia Lozano Date: 7/7/14
Survey Number: TIRS- 05132014 BGC JSS 046

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05292014 BGC JSS 094

Survey Description:

Gamma Walkover Survey performed at Bigelow Court Building 1103 Unit D underside of concrete foundation.
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine any presence of commodities or point sources underside of the concrete foundation.
No indication of a commodity or point source was identified.
Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundation of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 5/29/2014 **Time:** 1300 **End Date:** 5/29/2014 **Time:** 1356

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 07/07/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
Bldg 1103-D													Scan Range:13,336-22,487 cpm

Approved By: Takeshi Ibuki [signature] RE 7/7/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05132014 BGC JSS 051

Survey Description:

Site Bigelow Court Building 1103 Unit E - Surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit E. A one square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the center of every group of grids.

Elevated alpha and beta static counts above MDA (less than Release Limit) were identified. Concrete samples will be obtained for further analysis.

Note: During the period of surveying the foundation of Building 1103, surveys did not identify total contamination exceeding the applicable Reg. Guide 1.86 Table 1 release limits.

RWP: 2013 BGC JS 01 1

Start Date: 5/13/2014 **Time:** 0900 **End Date:** 5/27/2014 **Time:** 1335

(Printed Name) **Surveyor:** Neil Morrison Frederick Johnson

(Signature) **Surveyor:** Date: 6-3-2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	32.2%	33.3%
Serial #:	265988	Bkgd (lab) CPM:	0.2	31.8
Probe / #:		MDA (dpm/100cm²):	16	88
Cal. Due:	7/16/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	20.6%	31.9%
Serial #:	184934	Bkgd (lab) CPM:	1.9	255.1
Probe / #:	PR090881	MDA (dpm/100cm²):	8	41
Cal. Due:	6/24/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	17	389
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1 α cpm/100 cm2	Removable Contamination #1 β/γ cpm/100 cm2	Removable Contamination #1 α dpm/100 cm2	Removable Contamination #1 β/γ dpm/100 cm2	Total Contamination #2 α cpm/probe area	Total Contamination #2 β/γ cpm/probe area	Total Contamination #2 α dpm/100cm2	Total Contamination #2 β/γ dpm/100cm2	Gamma #3 Gross cpm	Gamma #3 < or ≥ IL	Exposure Rate #4 µR/hr Contact Gross	Exposure Rate #4 µR/hr 30 cm Gross	Comments
1	0	37	<MDA	<MDA	15	519	11	142					GRID 1
2	1	35	<MDA	<MDA	17	479	13	120					GRID 2
3	0	37	<MDA	<MDA	17	502	13	133					GRID 3
4	0	38	<MDA	<MDA	16	493	12	128					GRID 4
5	0	35	<MDA	<MDA	14	483	10	122					GRID 5
6	0	28	<MDA	<MDA	15	499	11	131					GRID 6
7	0	28	<MDA	<MDA	17	488	13	125					GRID 7
8	0	43	<MDA	<MDA	14	463	10	112					GRID 8
9	0	37	<MDA	<MDA	12	458	8	109					GRID 9
10	0	24	<MDA	<MDA	14	480	10	121					GRID 10
11	0	42	<MDA	<MDA	14	496	10	129					GRID 11
12	0	32	<MDA	<MDA	13	484	9	123					GRID 12
13	0	34	<MDA	<MDA	18	470	13	115					GRID 13
14	0	28	<MDA	<MDA	13	468	9	114					GRID 14
15	0	23	<MDA	<MDA	20	467	15	114					GRID 15
16	1	29	<MDA	<MDA	12	394	8	75					GRID 16
17	0	31	<MDA	<MDA	10	402	<MDA	79					GRID 17
18	0	24	<MDA	<MDA	8	347	<MDA	49					GRID 18
19	1	34	<MDA	<MDA	8	376	<MDA	65					GRID 19
20	0	37	<MDA	<MDA	12	379	8	67					GRID 20

Approved By: Takeshi Ibuki *Print Name* — *Signature* — RE *Title* — 6/4/2014 *Date*

(Printed Name)
Surveyor: Neil Morrison Frederick Johnson

(Signature)
Surveyor: Date: 6-3-14

Survey Number: TIRS- 05132014 BGC JSS 051

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	30	<MDA	<MDA	8	390	<MDA	72					GRID 21
22	0	40	<MDA	<MDA	9	372	<MDA	63					GRID 22
23	2	40	<MDA	<MDA	13	371	9	62					GRID 23
24	0	38	<MDA	<MDA	17	381	13	68					GRID 24
25	0	36	<MDA	<MDA	14	369	10	61					GRID 25
26	1	30	<MDA	<MDA	14	354	10	53					GRID 26
27	1	36	<MDA	<MDA	11	403	<MDA	79					GRID 27
28	0	39	<MDA	<MDA	15	344	11	48					GRID 28
29	1	31	<MDA	<MDA	9	376	<MDA	65					GRID 29
30	0	31	<MDA	<MDA	19	402	14	79					GRID 30
31	0	29	<MDA	<MDA	11	360	<MDA	56					GRID 31
32	0	33	<MDA	<MDA	12	363	8	58					GRID 32
33	0	42	<MDA	<MDA	14	409	10	83					GRID 33
34	0	37	<MDA	<MDA	11	381	<MDA	68					GRID 34
35	1	37	<MDA	<MDA	8	404	<MDA	80					GRID 35
36	0	38	<MDA	<MDA	13	391	9	73					GRID 36
37	0	27	<MDA	<MDA	9	391	<MDA	73					GRID 37
38	0	34	<MDA	<MDA	11	382	<MDA	68					GRID 38
39	1	35	<MDA	<MDA	21	412	16	84					GRID 39
40	0	37	<MDA	<MDA	21	380	16	67					GRID 40
41	0	28	<MDA	<MDA	21	375	16	64					GRID 41
42	1	27	<MDA	<MDA	10	426	<MDA	92					GRID 42
43	0	42	<MDA	<MDA	19	389	14	72					GRID 43
44	0	46	<MDA	<MDA	9	390	<MDA	72					GRID 44
45	0	24	<MDA	<MDA	11	452	<MDA	106					GRID 45
46	1	28	<MDA	<MDA	21	434	16	96					GRID 46
47	2	37	<MDA	<MDA	13	380	9	67					GRID 47
48	0	25	<MDA	<MDA	20	401	15	78					GRID 48
49	0	41	<MDA	<MDA	16	435	12	97					GRID 49
50	1	36	<MDA	<MDA	13	369	9	61					GRID 50
51	1	29	<MDA	<MDA	13	412	9	84					GRID 51
52	0	30	<MDA	<MDA	18	415	13	86					GRID 52
53	0	37	<MDA	<MDA	21	405	16	80					GRID 53
54	0	26	<MDA	<MDA	16	391	12	73					GRID 54
55	0	38	<MDA	<MDA	13	410	9	83					GRID 55
56	0	37	<MDA	<MDA	22	413	17	85					GRID 56
57					24	416	18	86					Follow up for Grid # 7
58					17	424	13	91					Follow up for Grid # 15
59					10	376	<MDA	65					Follow up for Grid # 40
60					16	427	12	92					Follow up for Grid # 56

CB&I Federal Services

(Printed Name)
Surveyor: Neil Morrison Frederick Johnson
(Signature)
Surveyor: Date 6-3-14

Survey Number: TIRS- 05132014 BGC JSS 051

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					7	447	<MDA	103					Follow up for Grid # 1
62					2	456	<MDA	108					Follow up for Grid # 2
63					4	466	<MDA	113					Follow up for Grid # 30
64					7	460	<MDA	110					Follow up for Grid # 39
65					6	481	<MDA	121					Follow up for Grid # 41
66					9	460	<MDA	110					Follow up for Grid # 46
67					6	508	<MDA	136					Follow up for Grid # 48
68					8	464	<MDA	112					Follow up for Grid # 53

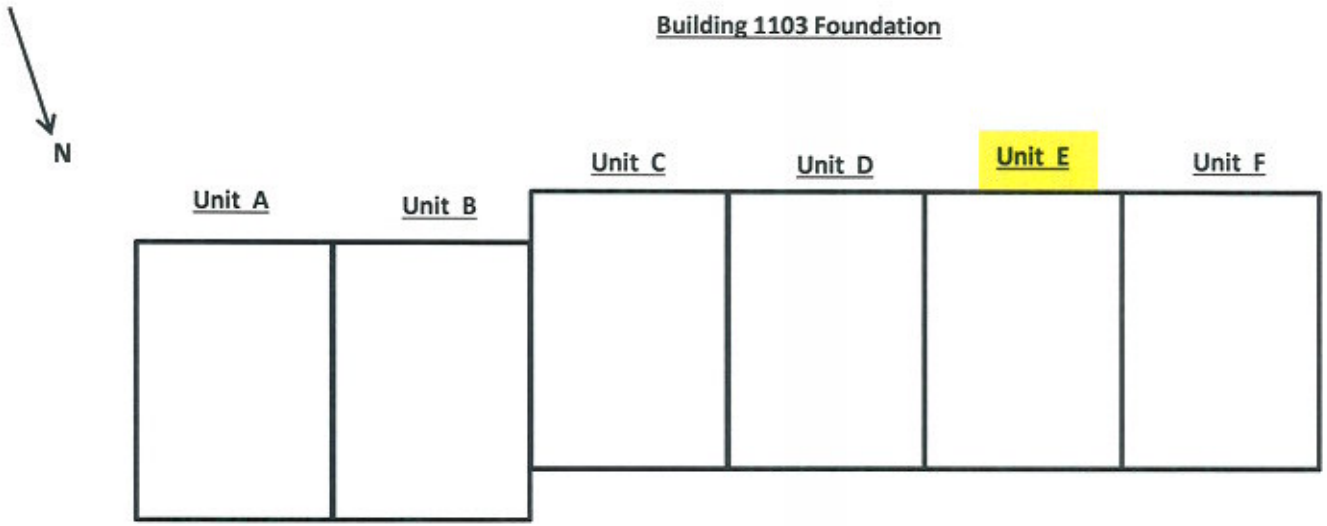
(Printed Name) **Surveyor:** Neil Morrison Frederick Johnson

(Signature) **Surveyor:**

Date: 6-3-14

Survey Number: TIRS- 05132014 BGC JSS 051

Building 1103 Foundation



Description

Total 56 of one square meter grids were established within Unit E. 100% scan survey on all accessible surface performed. A static count performed and a smears obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/14/2014
2:12:07 PM

Header 1: Treasure Island
Header 2: 3030 S/N 265988
Header 3: alpha bkgd:0.2
Header 4: Beta bkgd:31.8
Header 5: BGC 1103-E
Header 6: RCT:N. Morrison

Calibration Due Date: 7/16/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/14/2014	12:31:18	0	37	1.0	S	
2	5/14/2014	12:32:56	1	35	1.0	S	
3	5/14/2014	12:34:30	0	37	1.0	S	
4	5/14/2014	12:35:58	0	38	1.0	S	
5	5/14/2014	12:37:27	0	35	1.0	S	
6	5/14/2014	12:40:06	0	28	1.0	S	
7	5/14/2014	12:41:35	0	28	1.0	S	
8	5/14/2014	12:43:21	0	43	1.0	S	
9	5/14/2014	12:45:28	0	37	1.0	S	
10	5/14/2014	12:46:45	0	24	1.0	S	
11	5/14/2014	12:49:03	0	42	1.0	S	
12	5/14/2014	12:51:42	0	32	1.0	S	
13	5/14/2014	12:54:03	0	34	1.0	S	
14	5/14/2014	12:55:49	0	28	1.0	S	
15	5/14/2014	12:57:19	0	23	1.0	S	
16	5/14/2014	12:59:09	1	29	1.0	S	
17	5/14/2014	13:01:36	0	31	1.0	S	
18	5/14/2014	13:03:07	0	24	1.0	S	
19	5/14/2014	13:04:41	1	34	1.0	S	
20	5/14/2014	13:05:56	0	37	1.0	S	
21	5/14/2014	13:07:47	0	30	1.0	S	
22	5/14/2014	13:09:08	0	40	1.0	S	
23	5/14/2014	13:10:23	2	40	1.0	S	
24	5/14/2014	13:11:48	0	38	1.0	S	
25	5/14/2014	13:13:25	0	36	1.0	S	
26	5/14/2014	13:14:58	1	30	1.0	S	
27	5/14/2014	13:16:14	1	36	1.0	S	
28	5/14/2014	13:17:33	0	39	1.0	S	
29	5/14/2014	13:19:07	1	31	1.0	S	

(Printed Name)
Surveyor: Neil Morrison Frederick Johnson
(Signature)
Surveyor: Date: 6-3-14
Survey Number: TIRS- 05132014 BGC JSS 051

30	5/14/2014	13:20:25	0	31	1.0	S
31	5/14/2014	13:22:09	0	29	1.0	S
32	5/14/2014	13:23:28	0	33	1.0	S
33	5/14/2014	13:24:56	0	42	1.0	S
34	5/14/2014	13:26:39	0	37	1.0	S
35	5/14/2014	13:27:56	1	37	1.0	S
36	5/14/2014	13:29:17	0	38	1.0	S
37	5/14/2014	13:30:56	0	27	1.0	S
38	5/14/2014	13:32:59	0	34	1.0	S
39	5/14/2014	13:35:17	1	35	1.0	S
40	5/14/2014	13:39:08	0	37	1.0	S
41	5/14/2014	13:41:15	0	28	1.0	S
42	5/14/2014	13:42:47	1	27	1.0	S
43	5/14/2014	13:44:39	0	42	1.0	S
44	5/14/2014	13:46:32	0	46	1.0	S
45	5/14/2014	13:47:52	0	24	1.0	S
46	5/14/2014	13:49:08	1	28	1.0	S
47	5/14/2014	13:50:33	2	37	1.0	S
48	5/14/2014	13:51:50	0	25	1.0	S
49	5/14/2014	13:55:51	0	41	1.0	S
50	5/14/2014	13:57:06	1	36	1.0	S
51	5/14/2014	13:58:45	1	29	1.0	S
52	5/14/2014	14:00:01	0	30	1.0	S
53	5/14/2014	14:01:35	0	37	1.0	S
54	5/14/2014	14:02:50	0	26	1.0	S
55	5/14/2014	14:04:26	0	38	1.0	S
56	5/14/2014	14:06:57	0	37	1.0	S

(Printed Name)
Surveyor: Neil Morrison Frederick Johnson
(Signature)
Surveyor: Date: 6-3-14
Survey Number: TIRS- 05132014 BGC JSS 051

Header 1:	Treasure Is	land						
Header 2:	2360 S/N	18 4934						
Header 3:	Alpha BKGD:	1.9						
Header 4:	Beta BKGD:	255.1						
Header 5:	Bldg1103-E							
Header 6:	RCT:N. Morrison							
S=Scaler,	R=Ratemeter							
Sample #	Date	Time		Alpha	Beta	S/R	Count Time	Location
	5/14/2014	9:31:27	AM	17	389	S	1	BKG
1	5/13/2014	1:51:59	PM	15	519	S	1	
2	5/13/2014	1:54:20	PM	17	479	S	1	
3	5/13/2014	1:56:42	PM	17	502	S	1	
4	5/13/2014	1:58:35	PM	16	493	S	1	
5	5/13/2014	2:01:25	PM	14	483	S	1	
6	5/13/2014	2:03:20	PM	15	499	S	1	
7	5/13/2014	2:08:00	PM	17	488	S	1	
8	5/13/2014	2:09:43	PM	14	463	S	1	
9	5/13/2014	2:12:39	PM	12	458	S	1	
10	5/13/2014	2:14:59	PM	14	480	S	1	
11	5/13/2014	2:16:53	PM	14	496	S	1	
12	5/13/2014	2:19:47	PM	13	484	S	1	
13	5/13/2014	2:21:40	PM	18	470	S	1	
14	5/13/2014	2:23:23	PM	13	468	S	1	
15	5/13/2014	2:25:12	PM	20	467	S	1	
16	5/14/2014	8:12:36	AM	12	394	S	1	
17	5/14/2014	8:15:17	AM	10	402	S	1	
18	5/14/2014	8:17:15	AM	8	347	S	1	
19	5/14/2014	8:19:22	AM	8	376	S	1	
20	5/14/2014	8:21:52	AM	12	379	S	1	
21	5/14/2014	8:23:50	AM	8	390	S	1	
22	5/14/2014	8:25:41	AM	9	372	S	1	
23	5/14/2014	8:27:39	AM	13	371	S	1	
24	5/14/2014	8:29:49	AM	17	381	S	1	
25	5/14/2014	8:31:37	AM	14	369	S	1	
26	5/14/2014	8:33:23	AM	14	354	S	1	
27	5/14/2014	8:35:13	AM	11	403	S	1	
28	5/14/2014	8:37:21	AM	15	344	S	1	
29	5/14/2014	8:39:17	AM	9	376	S	1	
30	5/14/2014	8:41:07	AM	19	402	S	1	
31	5/14/2014	8:43:33	AM	11	360	S	1	

(Printed Name)
Surveyor: Neil Morrison Frederick Johnson
(Signature)
Surveyor: Date: 6-3-14
Survey Number: TIRS- 05132014 BGC JSS 051

31	5/14/2014	8:43:33 AM	11	360	S	1	
32	5/14/2014	8:45:16 AM	12	363	S	1	
33	5/14/2014	8:47:07 AM	14	409	S	1	
34	5/14/2014	8:49:01 AM	11	381	S	1	
35	5/14/2014	8:50:54 AM	8	404	S	1	
36	5/14/2014	8:52:31 AM	13	391	S	1	
37	5/14/2014	8:54:03 AM	9	391	S	1	
38	5/14/2014	8:55:38 AM	11	382	S	1	
39	5/14/2014	8:57:13 AM	21	412	S	1	
40	5/14/2014	8:58:44 AM	21	380	S	1	
41	5/14/2014	9:00:24 AM	21	375	S	1	
42	5/14/2014	9:01:58 AM	10	426	S	1	
43	5/14/2014	9:03:40 AM	19	389	S	1	
44	5/14/2014	9:08:39 AM	9	390	S	1	
45	5/14/2014	9:10:10 AM	11	452	S	1	
46	5/14/2014	9:11:51 AM	21	434	S	1	
47	5/14/2014	9:13:33 AM	13	380	S	1	
48	5/14/2014	9:15:43 AM	20	401	S	1	
49	5/14/2014	9:17:12 AM	16	435	S	1	
50	5/14/2014	9:18:43 AM	13	369	S	1	
51	5/14/2014	9:21:11 AM	13	412	S	1	
52	5/14/2014	9:22:49 AM	18	415	S	1	
53	5/14/2014	9:24:27 AM	21	405	S	1	
54	5/14/2014	9:26:08 AM	16	391	S	1	
55	5/14/2014	9:27:38 AM	13	410	S	1	
56	5/14/2014	9:29:08 AM	22	413	S	1	
57	5/14/2014	9:42:28 AM	24	416	S	1	Follow Up #7
58	5/14/2014	9:45:07 AM	17	424	S	1	Follow Up #15
59	5/14/2014	9:47:30 AM	10	376	S	1	Follow Up #40
60	5/14/2014	9:49:17 AM	16	427	S	1	Follow Up #56
61	5/27/2014	1:16:48 PM	7	447	S	1	Follow Up #1
62	5/27/2014	1:18:31 PM	2	456	S	1	Follow Up #3
63	5/27/2014	1:20:35 PM	4	466	S	1	Follow Up #30
64	5/27/2014	1:23:10 PM	7	460	S	1	Follow Up #39
65	5/27/2014	1:24:38 PM	6	481	S	1	Follow Up #41
66	5/27/2014	1:26:38 PM	9	460	S	1	Follow Up #46
67	5/27/2014	1:28:17 PM	6	508	S	1	Follow Up #48
68	5/27/2014	1:30:02 PM	8	464	S	1	Follow Up #53

(Printed Name)
Surveyor: Neil Morrison Frederick Johnson

(Signature)
Surveyor: Date: 6-3-14

Survey Number: TIRS- 05132014 BGC JSS 051

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05292014 BGC JSS 093

Survey Description:

Gamma Walkover Survey performed at Bigelow Court Building 1103 Unit E underside of concrete foundation.
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine any presence of commodities or point sources underside of the concrete foundation.
No indication of a commodity or point source was identified.
Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 5/29/2014 **Time:** 1210 **End Date:** 5/29/2014 **Time:** 1249

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 07/07/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
Bldg 1103-E													Scan Range:11,156-21,225 cpm

Approved By: Takeshi Ibuki [signature] RE 7/7/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05132014 BGC JSS 052

Survey Description: Bigelow Court- Building 1103 Unit F - Total surface contamination survey performed on 100% of all accessible areas of the concrete foundation within Unit F. A one square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the highest scan location or the center of the grids. Elevated static counts above MDA (less than Release Limits) were identified. Concrete samples will be obtained for further analysis.

Data logger on Ludlum 2360 did not record follow up statics taken on 05/27/2014. Information was taken from field notes.

Note: During the period of surveying the foundation of Building 1103, surveys did not identify total contamination exceeding the applicable Reg. Guide 1.86 Table 1 release limits.

RWP: 2013 BGC JS 01 1

Start Date: 5/13/2014 **Time:** 0910 **End Date:** 5/27/2014 **Time:** 1400

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 05/27/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	33.3%	29.6%
Serial #:	227355	Bkgd (lab) CPM:	0.3	31.8
Probe / #:		MDA (dpm/100cm^2) :	17	99
Cal. Due:	5/29/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	14.9%	20.0%
Serial #:	276935	Bkgd (lab) CPM:	1.6	331.9
Probe / #:	093966	MDA (dpm/100cm^2) :	10	75
Cal. Due:	3/25/2015	Count Time(min):	1	
Probe Area(cm^2):	584	Area BkgCPM:	4	474
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
1	0	30	<MDA	<MDA	10	619	<MDA	246						Grid-1
2	0	37	<MDA	<MDA	6	586	<MDA	218						Grid-2
3	0	35	<MDA	<MDA	5	554	<MDA	190						Grid-3
4	0	27	<MDA	<MDA	6	553	<MDA	189						Grid-4
5	0	21	<MDA	<MDA	6	563	<MDA	198						Grid-5
6	0	32	<MDA	<MDA	10	606	<MDA	235						Grid-6
7	0	29	<MDA	<MDA	7	577	<MDA	210						Grid-7
8	1	33	<MDA	<MDA	8	539	<MDA	177						Grid-8
9	0	31	<MDA	<MDA	5	600	<MDA	230						Grid-9
10	1	37	<MDA	<MDA	7	562	<MDA	197						Grid-10
11	0	32	<MDA	<MDA	8	597	<MDA	227						Grid-11
12	0	26	<MDA	<MDA	7	601	<MDA	230						Grid-12
13	1	23	<MDA	<MDA	12	596	12	226						Grid-13
14	0	31	<MDA	<MDA	4	525	<MDA	165						Grid-14
15	0	29	<MDA	<MDA	2	350	<MDA	<MDA						Grid-15
16	0	34	<MDA	<MDA	7	362	<MDA	<MDA						Grid-16
17	0	30	<MDA	<MDA	8	435	<MDA	88						Grid-17
18	0	24	<MDA	<MDA	8	462	<MDA	111						Grid-18
19	0	46	<MDA	<MDA	5	458	<MDA	108						Grid-19
20	0	30	<MDA	<MDA	9	445	<MDA	97						Grid-20

Approved By: Takeshi Ibuki [signature] RE 7/7/2014

Print Name *Signature* *Title* *Date*

CB&I Federal Services

(Printed Name)
Surveyor: Frederick Johnson

(Signature)
Surveyor: FJ Date: 05/27/2014

Survey Number: TIRS- 05132014 BGC JSS 052

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	37	<MDA	<MDA	9	497	<MDA	141					Grid-21
22	0	42	<MDA	<MDA	9	548	<MDA	185					Grid-22
23	0	32	<MDA	<MDA	14	526	14	166					Grid-23
24	0	21	<MDA	<MDA	15	574	15	207					Grid-24
25	0	36	<MDA	<MDA	17	555	18	191					Grid-25
26	1	33	<MDA	<MDA	14	570	14	204					Grid-26
27	0	32	<MDA	<MDA	7	539	<MDA	177					Grid-27
28	0	28	<MDA	<MDA	8	558	<MDA	194					Grid-28
29	0	41	<MDA	<MDA	10	539	<MDA	177					Grid-29
30	1	33	<MDA	<MDA	6	521	<MDA	162					Grid-30
31	1	27	<MDA	<MDA	11	541	11	179					Grid-31
32	0	33	<MDA	<MDA	13	509	13	152					Grid-32
33	0	39	<MDA	<MDA	10	526	<MDA	166					Grid-33
34	1	32	<MDA	<MDA	10	525	<MDA	165					Grid-34
35	0	31	<MDA	<MDA	7	531	<MDA	170					Grid-35
36	0	38	<MDA	<MDA	10	546	<MDA	183					Grid-36
37	0	32	<MDA	<MDA	11	504	11	147					Grid-37
38	0	21	<MDA	<MDA	16	525	17	165					Grid-38
39	1	23	<MDA	<MDA	10	530	<MDA	170					Grid-39
40	0	33	<MDA	<MDA	18	576	19	209					Grid-40
41	0	33	<MDA	<MDA	11	591	11	222					Grid-41
42	0	25	<MDA	<MDA	12	532	12	171					Grid-42
43	0	24	<MDA	<MDA	19	505	20	148					Grid-43
44	0	26	<MDA	<MDA	9	520	<MDA	161					Grid-44
45	0	33	<MDA	<MDA	11	487	11	133					Grid-45
46	0	23	<MDA	<MDA	6	556	<MDA	192					Grid-46
47	0	26	<MDA	<MDA	11	544	11	182					Grid-47
48	0	27	<MDA	<MDA	16	538	17	176					Grid-48
49	1	26	<MDA	<MDA	14	524	14	164					Grid-49
50	0	35	<MDA	<MDA	19	563	20	198					Grid-50
51	1	28	<MDA	<MDA	16	556	17	192					Grid-51
52	1	33	<MDA	<MDA	11	538	11	176					Grid-52
53	0	30	<MDA	<MDA	18	584	19	216					Grid-53
54	0	29	<MDA	<MDA	13	556	13	192					Grid-54
55	0	20	<MDA	<MDA	10	538	<MDA	176					Grid-55
56	0	28	<MDA	<MDA	18	513	19	155					Grid-56
57					14	564	14	199					Grid-13 Follow-Up
58					12	575	12	208					Grid-24 Follow-Up
59					11	476	11	123					Grid-49 Follow-Up
60					12	481	12	128					Grid-52 Follow-Up

CB&I Federal Services

(Printed Name)
Surveyor: Frederick Johnson
(Signature)
Surveyor: Date: 05/27/2014

Survey Number: TIRS- 05132014 BGC JSS 052

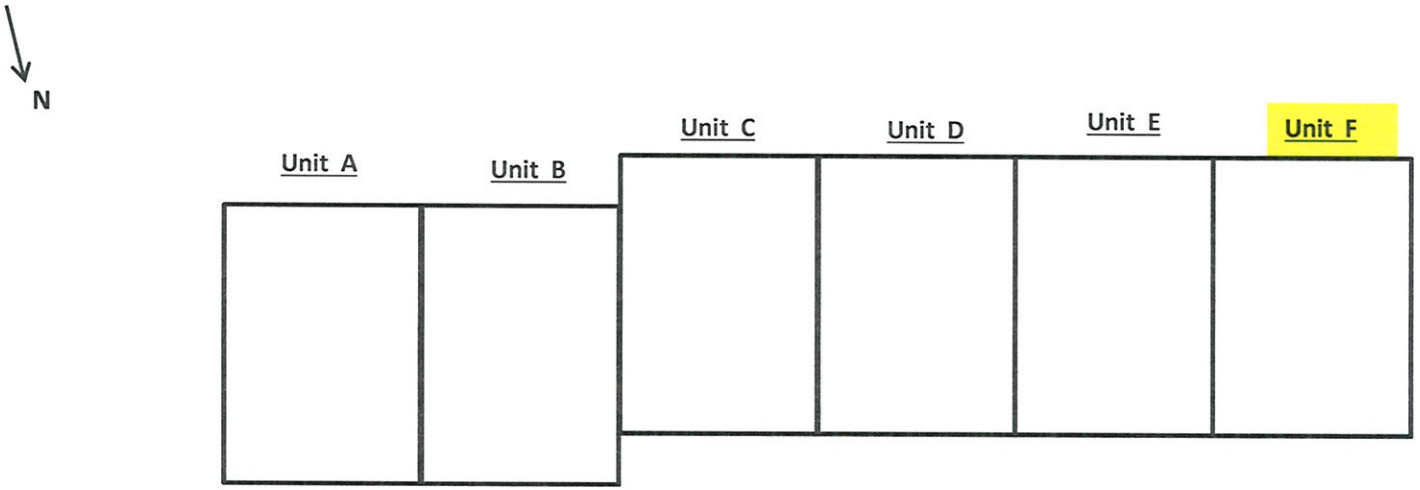
Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	µR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61					10	466	<MDA	115					Grid-1 Follow-Up
62					3	481	<MDA	128					Grid-25 Follow-Up
63					5	565	<MDA	200					Grid-40 Follow-Up
64					6	513	<MDA	155					Grid-43 Follow-Up
65					2	579	<MDA	212					Grid-50 Follow-Up
66					3	545	<MDA	182					Grid-53 Follow-Up
67					5	588	<MDA	219					Grid-56 Follow-Up

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** FJ Date: 05/27/2014

Survey Number: TIRS- 05132014 BGC JSS 052

Building 1103 Foundation



Description

Total 56 of one square meter grids were established within Unit F. 100% scan survey on all accessible surface performed. A static count performed and a smears obtained from each grid.

Legend

Smear Location

*Exposure Rate microR/hr

Commodity Location

Static Location

Soil Sample Location

*All exposure rates are general area unless otherwise noted.

Ludlum Measurements,Inc.
Model 3030 Sample Data

5/14/2014
1:25:09 PM

Header 1: Treasure Island
Header 2: 3030 S/N 227355
Header 3: Alpha BKGD:0.3
Header 4: Beta BKGD: 31.8
Header 5: BGC-1103-F
Header 6: RCT:F. Johnson

Calibration Due Date: 5/29/2014

Sample #	Date	Time	Alpha Count	Beta Count	Count Time	Type	Comment
1	5/14/2014	11:03:57	0	30	1.0	S	
2	5/14/2014	11:05:43	0	37	1.0	S	
3	5/14/2014	11:07:01	0	35	1.0	S	
4	5/14/2014	11:08:25	0	27	1.0	S	
5	5/14/2014	11:10:01	0	21	1.0	S	
6	5/14/2014	11:11:24	0	32	1.0	S	
7	5/14/2014	11:12:48	0	29	1.0	S	
8	5/14/2014	11:14:23	1	33	1.0	S	
9	5/14/2014	11:16:06	0	31	1.0	S	
10	5/14/2014	11:17:52	1	37	1.0	S	
11	5/14/2014	11:19:18	0	32	1.0	S	
12	5/14/2014	11:20:38	0	26	1.0	S	
13	5/14/2014	11:23:25	1	23	1.0	S	
14	5/14/2014	11:25:02	0	31	1.0	S	
15	5/14/2014	11:26:19	0	29	1.0	S	
16	5/14/2014	11:27:35	0	34	1.0	S	
17	5/14/2014	12:11:41	0	30	1.0	S	
18	5/14/2014	12:13:05	0	24	1.0	S	
19	5/14/2014	12:14:53	0	46	1.0	S	
20	5/14/2014	12:16:09	0	30	1.0	S	
21	5/14/2014	12:18:24	0	37	1.0	S	
22	5/14/2014	12:20:11	0	42	1.0	S	
23	5/14/2014	12:21:37	0	32	1.0	S	
24	5/14/2014	12:23:19	0	21	1.0	S	
25	5/14/2014	12:24:44	0	36	1.0	S	
26	5/14/2014	12:26:18	1	33	1.0	S	
27	5/14/2014	12:27:34	0	32	1.0	S	
28	5/14/2014	12:29:13	0	28	1.0	S	
29	5/14/2014	12:30:32	0	41	1.0	S	
30	5/14/2014	12:31:47	1	33	1.0	S	
31	5/14/2014	12:35:58	1	27	1.0	S	
32	5/14/2014	12:37:17	0	33	1.0	S	
33	5/14/2014	12:38:51	0	39	1.0	S	

(Printed Name)
Surveyor: Frederick Johnson
(Signature)
Surveyor: Date: 05/27/2014
Survey Number: TIRS- 05132014 BGC JSS 052

34	5/14/2014	12:40:21	1	32	1.0	S
35	5/14/2014	12:42:19	0	31	1.0	S
36	5/14/2014	12:44:03	0	38	1.0	S
37	5/14/2014	12:47:23	0	32	1.0	S
38	5/14/2014	12:49:40	0	21	1.0	S
39	5/14/2014	12:53:20	1	23	1.0	S
40	5/14/2014	12:54:39	0	33	1.0	S
41	5/14/2014	12:57:06	0	33	1.0	S
42	5/14/2014	12:58:33	0	25	1.0	S
43	5/14/2014	13:00:16	0	24	1.0	S
44	5/14/2014	13:01:59	0	26	1.0	S
45	5/14/2014	13:04:06	0	33	1.0	S
46	5/14/2014	13:05:34	0	23	1.0	S
47	5/14/2014	13:08:53	0	26	1.0	S
48	5/14/2014	13:11:33	0	27	1.0	S
49	5/14/2014	13:13:08	1	26	1.0	S
50	5/14/2014	13:14:45	0	35	1.0	S
51	5/14/2014	13:16:15	1	28	1.0	S
52	5/14/2014	13:18:09	1	33	1.0	S
53	5/14/2014	13:19:41	0	30	1.0	S
54	5/14/2014	13:21:13	0	29	1.0	S
55	5/14/2014	13:22:51	0	20	1.0	S
56	5/14/2014	13:25:18	0	28	1.0	S

(Printed Name)
Surveyor: Frederick Johnson
(Signature)
Surveyor: Date: 05/27/2014
Survey Number: TIRS- 05132014 BGC JSS 052

Header 1: Treasure Island
Header 2: 2360 SN:276935
Header 3: Alpha BKGD: 1.6
Header 4: Beta BKGD:331.9
Header 5: 1103-F concrete
Header 6: RCT:F.Johnson

S=Scaler, R=Ratemeter

Sample #	Date	Time	Alpha	Beta	S/R	Count Time	Lo
BKG	05/13/2014	08:57:04 AM	4	474	S	1.0	
1	05/13/2014	02:01:17 PM	10	619	S	1.0	
2	05/13/2014	02:02:39 PM	6	586	S	1.0	
3	05/13/2014	02:04:24 PM	5	554	S	1.0	
4	05/13/2014	02:05:50 PM	6	553	S	1.0	
5	05/13/2014	02:07:28 PM	6	563	S	1.0	
6	05/13/2014	02:08:53 PM	10	606	S	1.0	
7	05/13/2014	02:10:22 PM	7	577	S	1.0	
8	05/13/2014	02:11:48 PM	8	539	S	1.0	
9	05/13/2014	02:14:00 PM	5	600	S	1.0	
10	05/13/2014	02:15:31 PM	7	562	S	1.0	
11	05/13/2014	02:18:28 PM	8	597	S	1.0	
12	05/13/2014	02:20:08 PM	7	601	S	1.0	
13	05/13/2014	02:21:32 PM	12	596	S	1.0	
14	05/13/2014	02:26:47 PM	4	525	S	1.0	
15	05/14/2014	08:14:58 AM	2	350	S	1.0	
16	05/14/2014	08:16:49 AM	7	362	S	1.0	
17	05/14/2014	08:18:10 AM	8	435	S	1.0	
18	05/14/2014	08:19:38 AM	8	462	S	1.0	
19	05/14/2014	08:21:00 AM	5	458	S	1.0	
20	05/14/2014	08:22:40 AM	9	445	S	1.0	
21	05/14/2014	08:24:23 AM	9	497	S	1.0	
22	05/14/2014	08:26:54 AM	9	548	S	1.0	
23	05/14/2014	08:28:34 AM	14	526	S	1.0	
24	05/14/2014	08:30:27 AM	15	574	S	1.0	
25	05/14/2014	08:32:12 AM	17	555	S	1.0	
26	05/14/2014	08:33:50 AM	14	570	S	1.0	
27	05/14/2014	08:35:12 AM	7	539	S	1.0	
28	05/14/2014	08:36:48 AM	8	558	S	1.0	
29	05/14/2014	08:38:16 AM	10	539	S	1.0	
30	05/14/2014	08:39:42 AM	6	521	S	1.0	
31	05/14/2014	08:41:16 AM	11	541	S	1.0	
32	05/14/2014	08:42:39 AM	13	509	S	1.0	
33	05/14/2014	08:44:11 AM	10	526	S	1.0	
34	05/14/2014	08:45:25 AM	10	525	S	1.0	
35	05/14/2014	08:46:48 AM	7	531	S	1.0	
36	05/14/2014	08:48:19 AM	10	546	S	1.0	
37	05/14/2014	08:49:39 AM	11	504	S	1.0	
38	05/14/2014	08:51:01 AM	16	525	S	1.0	
39	05/14/2014	08:52:19 AM	10	530	S	1.0	

(Printed Name)
Surveyor: Frederick Johnson
(Signature)
Surveyor: Date: 05/27/2014
Survey Number: TIRS- 05132014 BGC JSS 052

40	05/14/2014	08:54:29 AM	18	576	S	1.0
41	05/14/2014	08:56:17 AM	11	591	S	1.0
42	05/14/2014	08:57:52 AM	12	532	S	1.0
43	05/14/2014	08:59:12 AM	19	505	S	1.0
44	05/14/2014	09:02:36 AM	9	520	S	1.0
45	05/14/2014	09:04:03 AM	11	487	S	1.0
46	05/14/2014	09:05:26 AM	6	556	S	1.0
47	05/14/2014	09:06:48 AM	11	544	S	1.0
48	05/14/2014	09:08:08 AM	16	538	S	1.0
49	05/14/2014	09:09:36 AM	14	524	S	1.0
50	05/14/2014	09:10:58 AM	19	563	S	1.0
51	05/14/2014	09:12:35 AM	16	556	S	1.0
52	05/14/2014	09:13:56 AM	11	538	S	1.0
53	05/14/2014	09:15:20 AM	18	584	S	1.0
54	05/14/2014	09:16:39 AM	13	556	S	1.0
55	05/14/2014	09:18:54 AM	10	538	S	1.0
56	05/14/2014	09:20:14 AM	18	513	S	1.0
57	05/14/2014	09:21:53 AM	14	564	S	1.0
58	05/14/2014	09:23:09 AM	12	575	S	1.0
59	05/14/2014	09:41:37 AM	11	476	S	1.0
60	05/14/2014	09:43:04 AM	12	481	S	1.0

(Printed Name)
Surveyor: Frederick Johnson
(Signature)
Surveyor: Date: 05/27/2014
Survey Number: TIRS- 05132014 BGC JSS 052

CB&I Federal Services

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- **05292014** **BGC** **JSS** **092**

Survey Description:

Gamma Walkover Survey performed at Bigelow Court Building 1103 Unit F underside of concrete foundation.
Ludlum 2221/44-20 was used at a rate not to exceed 0.5 meter per second with a detector height of 4 inches from surface of concrete and observing both audio and visual meter response.
The purpose of this survey is to determine any presence of commodities or point sources underside of the concrete foundation.
No indication of a commodity or point source was identified.
Asphalt investigation level (IL) shown in instrument section is for reference only. This survey also includes the concrete foundations of the patio and storage unit.

RWP: 2014 BGC JS 01 0

Start Date: 5/29/2014 **Time:** 1000 **End Date:** 5/29/2014 **Time:** 1100

(Printed Name) **Surveyor:** Frederick Johnson

(Signature) **Surveyor:** [signature] Date: 07/07/2014

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Scan)	15698	Bkgd (lab):	
Ref Area IL(Scan)	18812	Area Bkgd	
Site	Asphalt9	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross		30 cm Gross	
Bldg 1103-F														Scan Range:12,905-20,617 CPM

Approved By: Takeshi Ibuki [signature] RE 7/7/2014

Print Name *Signature* *Title* *Date*

FRM-TI-01-1

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 06102014 BGC JSS 127

Survey Description: Bigelow Court- Follow up gamma static performed on footprint of 1103. Static locations were identified from the previous gamma walkover survey as equal to, or exceeding the scan investigation level. All statics were taken at 10cm above denoted locations surface of soil. This survey and previous survey listed below were performed to establish radiological conditions prior to construction of RSY Pad 7.

Reference survey TIRS-06062014-BGC-GWS-120

RWP: 2014 BGC JS 01 0

Start Date: 6/10/2014 **Time:** 0950 **End Date:** 6/11/2014 **Time:** 1000

(Printed Name) **Surveyor:** James Irvin

(Signature) **Surveyor:** John Date: 6-11-14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:		Efficiency:		
Serial #:		Bkgd (lab) CPM:		
Probe / #:		MDA (dpm/100cm^2) :		
Cal. Due:		Count Time(min):		
Probe Area(cm^2):		Area BkgCPM:		
		Sat/Unsat:		

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:	2221	Model:	
Serial #:	97290	Serial #:	
Cal. Due:	4/30/2015	Cal. Due:	
Ref Area BKG(Static)	17961	Bkgd (lab):	
Ref Area IL(Static)	21150	Area Bkgd	
Site	Location7	Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4			Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr			
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm	Gross	
1									18722	<IL				Static on Identified Soil Location
2									17739	<IL				Static on Identified Soil Location
3									17745	<IL				Static on Identified Soil Location
4									19202	<IL				Static on Identified Soil Location
5									19916	<IL				Static on Identified Soil Location
6									18711	<IL				Static on Identified Soil Location
7									18662	<IL				Static on Identified Soil Location
8									18866	<IL				Static on Identified Soil Location
9									18656	<IL				Static on Identified Soil Location
10									18057	<IL				Static on Identified Soil Location
11									18572	<IL				Static on Identified Soil Location
12									18436	<IL				Static on Identified Soil Location
13									18048	<IL				Static on Identified Soil Location

Approved By: Takeshi Ibuki *Print Name* — *Signature* — RE *Title* — 7/11/2014 *Date*

Gamma Static Survey at Bigelow Court
1103 Footprint Baseline

Survey Number:
TIRS-06102014-BGC-JSS-127

Instrument #97290

B Biased Static Locations

● < Mean + 3 std dev (21,118 cpm)

● ≥ Mean + 3 std dev (Soil Scan IL 21,119 cpm)

N

0 5 10 20
Feet

CB&I Federal Services, LLC

Coordinate system: CSP Zone III. NAD83, US Survey Foot

Data Processed In Treasure Island Office

Reviewed By: _____ **Date** 7/11/2014

RADIOLOGICAL SURVEY FORM

Survey Number: TIRS- 05152014 BGC JSS 062

Survey Description:

Surface contamination survey performed on 100% of all accessible areas of the concrete patios and sheds surrounding Building 1103. A one square meter grid pattern was used for tracking. Survey included 100% scan, a one minute static, and an associated smear taken at the center of every grid.
Elevated beta counts above MDA (less than Release Limit) were identified.
Eight follow-up statics were performed after being selected by RCS John Massey following a review of the initial data.

RWP: 2013 BGC JS 01 1

Start Date: 5/15/2014 **Time:** 0730 **End Date:** 5/21/2014 **Time:** 1045

(Printed Name) **Surveyor:** Richard George

(Signature) **Surveyor:** Richard D **Date:** 6/16/14

Smear Counter (Inst. #1)			Alpha	Beta/gamma
Model:	3030	Efficiency:	33.3%	29.6%
Serial #:	227355	Bkgd (lab) CPM:	0.3	31.8
Probe / #:		MDA (dpm/100cm²) :	17	99
Cal. Due:	5/29/2014	Count Time(min):	1	

Survey Meter (Inst. #2)			Alpha	Beta/gamma
Model:	2360/43-37	Efficiency:	14.1%	19.1%
Serial #:	275724	Bkgd (lab) CPM:	1.9	424.4
Probe / #:	068422	MDA (dpm/100cm²) :	11	89
Cal. Due:	10/29/2014	Count Time(min):	1	
Probe Area(cm²):	584	Area BkgCPM:	1	529
		Sat/Unsat:	sat	

Survey Meter (Inst. #3)		Exposure Rate Meter (Inst. #4)	
Model:		Model:	
Serial #:		Serial #:	
Cal. Due:		Cal. Due:	
Ref Area BKG(Scan)		Bkgd (lab):	
Ref Area IL(Scan)		Area Bkgd	
Site		Sat/Unsat:	

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	cpm/100 cm2		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
1	0	38	<MDA	<MDA	3	576	<MDA	136					Unit A-back step
2	0	35	<MDA	<MDA	1	633	<MDA	187					Unit A-back patio
3	0	28	<MDA	<MDA	8	604	<MDA	161					Unit A-back patio
4	0	30	<MDA	<MDA	4	597	<MDA	155					Unit A-back patio
5	0	29	<MDA	<MDA	8	561	<MDA	122					Unit A-back patio
6	0	32	<MDA	<MDA	11	598	<MDA	156					Unit A-back patio
7	0	31	<MDA	<MDA	8	594	<MDA	152					Unit A-back patio
8	0	36	<MDA	<MDA	3	596	<MDA	154					Unit A -back patio
9	0	42	<MDA	<MDA	6	564	<MDA	125					Unit A-back patio
10	0	37	<MDA	<MDA	4	598	<MDA	156					Unit A -back patio
11	1	36	<MDA	<MDA	6	541	<MDA	105					Unit A-back patio
12	0	33	<MDA	<MDA	6	560	<MDA	122					Unit A-back patio
13	0	35	<MDA	<MDA	7	584	<MDA	143					Unit B-back step
14	1	33	<MDA	<MDA	4	606	<MDA	163					Unit B-back patio
15	0	28	<MDA	<MDA	8	616	<MDA	172					Unit B-back patio
16	0	34	<MDA	<MDA	6	562	<MDA	123					Unit B-back patio
17	0	22	<MDA	<MDA	7	567	<MDA	128					Unit B-back patio
18	1	30	<MDA	<MDA	8	570	<MDA	131					Unit B-back patio
19	0	39	<MDA	<MDA	3	586	<MDA	145					Unit B back patio
20	1	24	<MDA	<MDA	7	566	<MDA	127					Unit B-back patio

Approved By: Takeshi Ibuki — *Print Name*; *Signature*; RE — *Title*; 6/16/2014 — *Date*

FRM-TI-01-1

(Printed Name)
Surveyor: Richard George

(Signature)
Surveyor: Rich G Date: 6/16/14

Survey Number: TIRS- 05152014 BGC JSS 062

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
21	0	37	<MDA	<MDA	5	620	<MDA	175					Unit B-back patio
22	0	33	<MDA	<MDA	3	566	<MDA	127					Unit B-back patio
23	0	33	<MDA	<MDA	8	609	<MDA	165					Unit B-back patio
24	0	34	<MDA	<MDA	8	619	<MDA	174					Unit B-back patio
25	0	39	<MDA	<MDA	2	548	<MDA	111					Unit C-back steps
26	0	45	<MDA	<MDA	4	543	<MDA	106					Unit C-back steps
27	0	34	<MDA	<MDA	4	516	<MDA	<MDA					Unit C-back steps
28	0	26	<MDA	<MDA	2	530	<MDA	95					Unit C-back steps
29	0	41	<MDA	<MDA	1	532	<MDA	96					Unit C-back patio
30	0	39	<MDA	<MDA	4	569	<MDA	130					Unit C-back patio
31	0	22	<MDA	<MDA	3	623	<MDA	178					Unit C-back patio
32	0	27	<MDA	<MDA	4	619	<MDA	174					Unit C-back patio
33	0	28	<MDA	<MDA	5	584	<MDA	143					Unit C-back patio
34	0	33	<MDA	<MDA	7	616	<MDA	172					Unit C-back patio
35	0	34	<MDA	<MDA	9	614	<MDA	170					Unit C-back patio
36	0	33	<MDA	<MDA	7	613	<MDA	169					Unit C-back patio
37	0	27	<MDA	<MDA	5	565	<MDA	126					Unit C-back patio
38	0	29	<MDA	<MDA	4	589	<MDA	148					Unit C-back patio
39	0	34	<MDA	<MDA	4	555	<MDA	117					Unit D-back steps
40	0	29	<MDA	<MDA	2	547	<MDA	110					Unit D-back steps
41	0	30	<MDA	<MDA	4	553	<MDA	115					Unit D-back steps
42	0	26	<MDA	<MDA	4	537	<MDA	101					Unit D-back steps
43	1	27	<MDA	<MDA	2	556	<MDA	118					Unit D-back patio
44	0	33	<MDA	<MDA	3	601	<MDA	158					Unit D-back patio
45	0	26	<MDA	<MDA	7	630	<MDA	184					Unit D-back patio
46	0	36	<MDA	<MDA	8	660	<MDA	211					Unit D-back patio
47	1	31	<MDA	<MDA	5	589	<MDA	148					Unit D-back patio
48	0	31	<MDA	<MDA	6	608	<MDA	165					Unit D-back patio
49	1	39	<MDA	<MDA	7	608	<MDA	165					Unit D-back patio
50	0	34	<MDA	<MDA	7	599	<MDA	157					Unit D-back patio
51	0	35	<MDA	<MDA	4	609	<MDA	165					Unit D-back patio
52	0	27	<MDA	<MDA	2	629	<MDA	183					Unit D-back patio
53	0	39	<MDA	<MDA	3	539	<MDA	103					Unit E-back steps
54	0	33	<MDA	<MDA	5	581	<MDA	140					Unit E-back steps
55	0	25	<MDA	<MDA	2	518	<MDA	<MDA					Unit E-back steps
56	0	36	<MDA	<MDA	4	577	<MDA	137					Unit E-back steps
57	1	44	<MDA	<MDA	5	580	<MDA	139					Unit F-back steps
58	0	38	<MDA	<MDA	6	633	<MDA	187					Unit F-back steps
59	0	34	<MDA	<MDA	4	621	<MDA	176					Unit F-back steps
60	0	29	<MDA	<MDA	6	580	<MDA	139					Unit F-back steps

(Printed Name)
Surveyor: Richard George

(Signature)
Surveyor: Rick D

Date: 6/16/14

Survey Number: TIRS- 05152014 BGC JSS 062

Survey Location	Removable Contamination #1				Total Contamination #2				Gamma #3		Exposure Rate #4		Comments
	α	β/γ	α	β/γ	α	β/γ	α	β/γ	Gross	< or ≥	μR/hr		
	counts per smear		dpm/100 cm2		cpm/probe area		dpm/100cm2		cpm	IL	Contact Gross	30 cm Gross	
61	0	32	<MDA	<MDA	5	550	<MDA	113					Unit F-front step
62	0	33	<MDA	<MDA	3	595	<MDA	153					Unit F-front storage shed
63	1	30	<MDA	<MDA	0	515	<MDA	<MDA					Unit F-front storage shed
64	0	27	<MDA	<MDA	2	560	<MDA	122					Unit F-front storage shed
65	0	26	<MDA	<MDA	1	548	<MDA	111					Unit F-front storage shed
66	0	23	<MDA	<MDA	4	547	<MDA	110					Unit E-front step
67	0	44	<MDA	<MDA	6	514	<MDA	<MDA					Units D and E front storage sheds
68	0	35	<MDA	<MDA	3	559	<MDA	121					Units D and E front storage sheds
69	0	31	<MDA	<MDA	3	568	<MDA	129					Units D and E front storage sheds
70	0	29	<MDA	<MDA	5	558	<MDA	120					Units D and E front storage sheds
71	1	32	<MDA	<MDA	3	560	<MDA	122					Units D and E front storage sheds
72	0	26	<MDA	<MDA	4	607	<MDA	164					Units D and E front storage sheds
73	0	33	<MDA	<MDA	3	556	<MDA	118					Units D and E front storage sheds
74	0	33	<MDA	<MDA	7	581	<MDA	140					Units D and E front storage sheds
75	0	27	<MDA	<MDA	3	559	<MDA	121					Unit D-front step
76	1	34	<MDA	<MDA	3	582	<MDA	141					Units D and E front patios
77	0	32	<MDA	<MDA	4	640	<MDA	193					Units D and E front patios
78	1	22	<MDA	<MDA	4	605	<MDA	162					Units D and E front patios
79	1	35	<MDA	<MDA	1	598	<MDA	156					Units D and E front patios
80	0	24	<MDA	<MDA	1	608	<MDA	165					Units D and E front patios
81	0	30	<MDA	<MDA	2	610	<MDA	166					Units D and E front patios
82	0	34	<MDA	<MDA	3	661	<MDA	212					Units D and E front patios
83	0	41	<MDA	<MDA	3	640	<MDA	193					Units D and E front patios
84	0	33	<MDA	<MDA	6	646	<MDA	199					Units D and E front patios
85	0	27	<MDA	<MDA	3	594	<MDA	152					Units D and E front patios
86	0	31	<MDA	<MDA	2	624	<MDA	179					Units D and E front patios
87	0	35	<MDA	<MDA	3	569	<MDA	130					Units D and E front patios
88	0	32	<MDA	<MDA	4	562	<MDA	123					Units D and E front patios
89	0	35	<MDA	<MDA	5	619	<MDA	174					Units D and E front patios
90	0	34	<MDA	<MDA	0	615	<MDA	171					Units D and E front patios
91	0	42	<MDA	<MDA	4	596	<MDA	154					Units D and E front patios
92	0	48	<MDA	<MDA	2	577	<MDA	137					Units D and E front patios
93	0	28	<MDA	<MDA	2	661	<MDA	212					Units D and E front patios
94	0	26	<MDA	<MDA	4	603	<MDA	160					Units D and E front patios
95	0	32	<MDA	<MDA	4	561	<MDA	122					Units D and E front patios
96	0	27	<MDA	<MDA	1	608	<MDA	165					Units D and E front patios
97	0	29	<MDA	<MDA	5	629	<MDA	183					Units D and E front patios
98	0	32	<MDA	<MDA	4	665	<MDA	216					Units D and E front patios
99	0	35	<MDA	<MDA	1	615	<MDA	171					Units D and E front patios
100	0	35	<MDA	<MDA	2	636	<MDA	190					Units D and E front patios